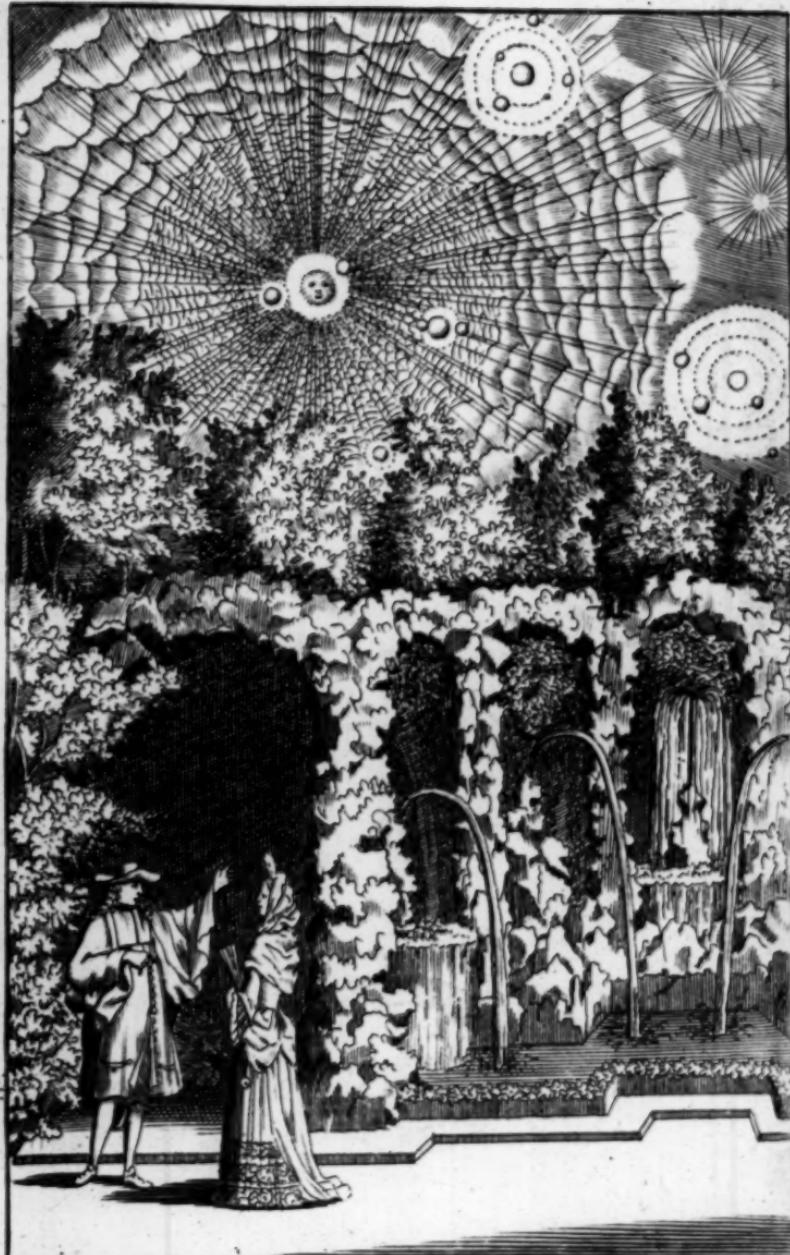


DISCOURSE OF THE PLURALITY OF WORLDS



DISCOURSE OF THE PLURALITY OF WORLDS

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CONVERSATIONS
WITH A
LADY,
ON THE
Plurality of WORLDS.

De Bovis de Fontenelle (B.)
Written in French by M. FONTENELLE,
Author of the *Dialogues of the Dead*.

Translated by Mr. GLANVILL.

The Fourth Edition.

With the Addition of a SIXTH
CONVERSATION.

To which is also added,
A DISCOURSE concerning the AN-
TIENTS and MODERNS. Written
by the same AUTHOR: And Trans-
lated by Mr. HUGHES.

L O N D O N :

Printed by J. DARBY, for M. WELLINGTON,
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CONVERSATIONS

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YOGA

lesson 20 W 30 will be
presented in this unit.



W. T. M. D. G. Z. O. 3
W. T. M. D. G. Z. O. 3
W. T. M. D. G. Z. O. 3

THE
P R E F A C E.


 T Case is much like Cicero's, when he undertook to write of Philosophy in Latin, there being then no Books upon that Subject, but what were written in Greek. When some told Cicero, that he would take pains to no purpose, because such as study'd Philosophy, would make use of Greek Authors, and not read Latin Books, which treated of it but at second hand; and others, who were no Admirers of this Science, would never trouble their Heads with either Greek or Latin: Cicero reply'd, They were much mistaken; for, said he, the great ease People will find in reading Latin Books, will tempt those to be Philosophers who are none; and they who already are Philosophers, by read-

A 2. ing

ing Greek Books, will be very glad to see how Philosophy is handled in Latin.

Cicero might with good reason answer as he did, because the Excellency of his Genius, and the great Reputation he had acquir'd, warranted the Success of all he wrote. But in a Design, not much unlike his, I am far from having those Grounds of Confidence which he had. My purpose is to discourse of Philosophy, but not in a Philosophical manner ; and to raise it to such a pitch, that it shall not be too dry and insipid a Subject to please Gentlemen, nor too mean and trifling to entertain Scholars. Should I be told, (as Cicero was) that such a Discourse as this would not please the Learned, because it can teach them nothing, nor the Illiterate, because they will have no mind to learn ; I will not answer as he did : it may be, endeavouring to please every body, I have pleas'd no body ; to keep the middle betwixt the Extremes, is difficult ; and I believe I shall never desire to put my self a second time to the like trouble.

If this Book have the Luck to be read, I declare to those who have any knowledge of Natural

The Preface.

v

Natural Philosophy, that I do not pretend to instruct, but only to divert them, by presenting to their View, in a gay and pleasing Dress, that which they already know: but they to whom the Subject is new, may be both diverted and instructed. The first will act contrary to my Intention, if they look for Profit; and the second, if they seek for nothing but Pleasure.

I have chosen that part of Philosophy which is most like to excite Curiosity: for what can more concern us, than to know how this World which we inhabit, is made; and whether there be any other Worlds like it, which are also inhabited as this is? They who have any Thoughts to lose, may throw them away upon such Subjects as this. But I suppose, they who can spend their time better, will not be at so vain and fruitless an Expence.

In these Discourses I have introduc'd a Woman, to be instructed in things of which she never heard: and I have made use of this Fiction, to render the Book the more acceptable, and to give encouragement to Ladies, by the example of one of their own Sex, who, without any supernatural Parts,

or Tincture of Learning, understands what is said to her; and without any Confusion, rightly apprehends what Vortexes and other Worlds are. And why may not there be a Woman like this imaginary Countess? since her Conceptions are no other than such as she could not chuse but have.

To penetrate into things either obscure in themselves, or but darkly express'd, requires deep Meditation, and earnest Application of the Mind: but here, nothing more is requisite than to read, and to print an Idea of what is read in the Fancy, which will certainly be clear enough. I shall desire no more of the fair Ladies, than that they will read this System of Philosophy with the same Application that they do a Romance or a Novel. 'Tis true that the Ideas of this Book are less familiar to most Ladies, than those of Romances are, but they are not more obscure: for at most, twice or thrice thinking, will render them very perspicuous.

I have not compos'd an airy System, which hath no Foundation at all: I have made use of some true Philosophical Arguments, and of as many as I thought necessary: but

The Preface.

vii

but it falls out very luckily in this Subject, that the Physical Ideas are in themselves very diverting: And as they convince and satisfy Reason, so at the same time they present to the Imagination a Spectacle, which looks as if it were made on purpose to please it.

When I meet with any Fragments which are not of this kind, I put them into some pretty strange Dress. Virgil hath done the like in his Georgicks: when his Subject is very dry, he adorns it with pleasant Digressions. Ovid hath done the same in his Art of Loving: and tho his Subject be of it self very pleasing, yet he thought it tedious to talk of nothing but Love. My Subject hath more need of Digressions than his; yet I have made use of 'em very sparingly, and of such only, as the natural liberty of Conversation allows: the greatest part of 'em are in the beginning of the Book, because the Mind cannot at first be so well acquainted with the principal Ideas which are presented to it; they are taken from the Subject it self, or are as near to it as is possible.

I

I have fancy'd nothing concerning the Inhabitants of the many Worlds, which is wholly fabulous: I have said all that can reasonably be thought of them; and the Visions which I have added, have some real Foundation. What is true, and what is false, are mingled together, but so as to be easily distinguish'd. I will not undertake to justify so fantastical and odd a Composition, that is the principal point of the Work, and for which I can give no very good Reason.

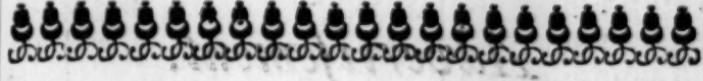
There remains no more to be said in this Preface, but to a sort of People who perhaps will not be easily satisfy'd; not but that I have good Reasons to give 'em, but because the best that can be given, will not content 'em: they are those scrupulous Persons, who imagine that the placing Inhabitants any where but upon the Earth, will prove dangerous to Religion. I know how excessively tender some are in Religious Matters, and therefore I am very unwilling to give any Offence in what I publish to People whose Opinion is contrary to that I maintain. But Religion can receive no Prejudice by my System, which fills an Infinity of Worlds with Inhabitants, if a little

little error of the Imagination be but rectify'd. When 'tis said the Moon is inhabited, some presently fancy that there are such Men there, as we are: and Church-Men, without any more ado, think him an Atheist, who is of that Opinion. None of Adam's Posterity ever travell'd so far as the Moon, nor were any Colonies ever sent thither; the Men then that are in the Moon, are not the Sons of Adam: And here again Theology would be puzzled, if there should be Men any where that never descended from him. To say no more, this is the great Difficulty to which all others may be reduc'd; to clear it by a larger Explanation, I must make use of Terms which deserve greater Respect than to be put into a Pamphlet so trivial, and so far from being serious, as this is. But perhaps there is no need of answering the Objection, for it concerns no body but the Men in the Moon: and I never yet said there are Men there. If any ask, what the Inhabitants there are, if they be not Men? All I can say is, that I never saw them; and 'tis not because I have seen them, that I speak of them. Let none now think

think that I say there are no Men in the Moon, purposely to avoid the Objection made against me: for it appears 'tis impossible there should be any Men there, according to that Idea I have framed of that infinite Diversity and Variety which is to be observ'd in the Works of Nature. This Idea runs thro the whole Book, and cannot be contradicted by any Philosopher. And to think there may be more Worlds than one, is neither against Reason or Scripture. If God glorify'd himself in making one World, the more Worlds be made, the greater must be his Glory. But I do not declare these Ideas to be Articles of my Faith: when I do, I hope I shall have the same liberty as the rest of my Neighbours.

E R R A T A.

Pag. 153. l. 4. for it, r. Wit. P. 159. l. 22. r. dare not be. P. 162. l. 1. r. whatever. P. 164. l. 2. r. other. P. 166. l. 23. r. in any one. P. 174. l. 8. r. neither. P. 183. l. 20. r. Justness. P. 185. l. 4. r. others.



The C O N T E N T S of the several Evenings Conversations.

- I. **T**HAT the Earth is a Planet,
which revolves on its own Axis,
and goes annually round the Sun. pag. 3
- II. That the Moon is inhabited. 34
- III. Particulars concerning the World
in the Moon, and Proofs that there are
Inhabitants in the other Planets. 66
- IV. Concerning the Worlds in the Planets,
Venus, Mercury, Mars, Jupiter
and Saturn. 91
- V. That the fixed Stars are Suns, and
give Light to other Worlds, as our Sun
does to this. 122
- VI. Some new Observations to confirm
the Subject of the former Discourses;
with some Discoveries lately made in the
Heavens. 151
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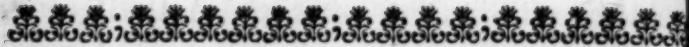
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The C O N T E N T S of the several Evenings Conversations.

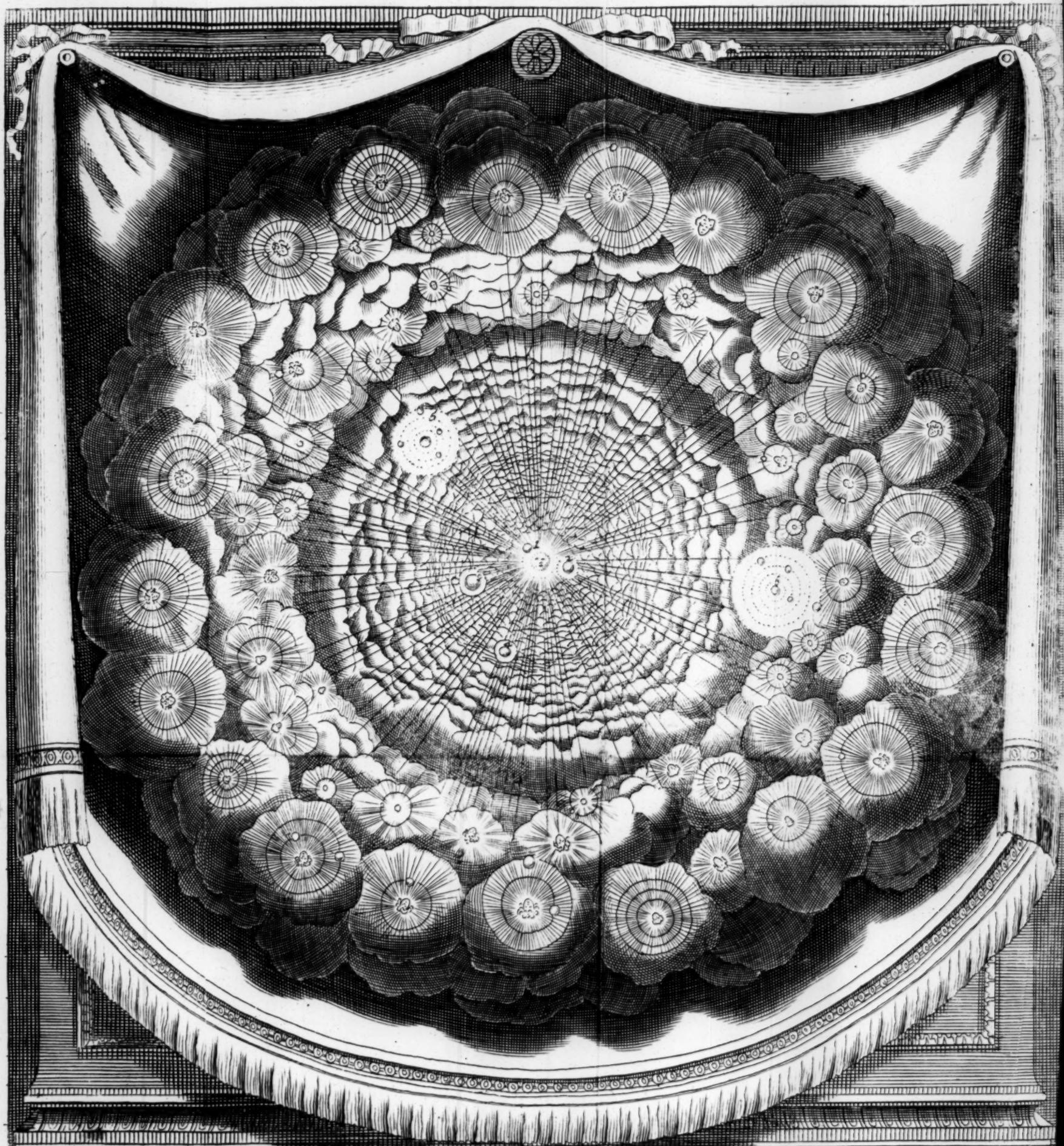
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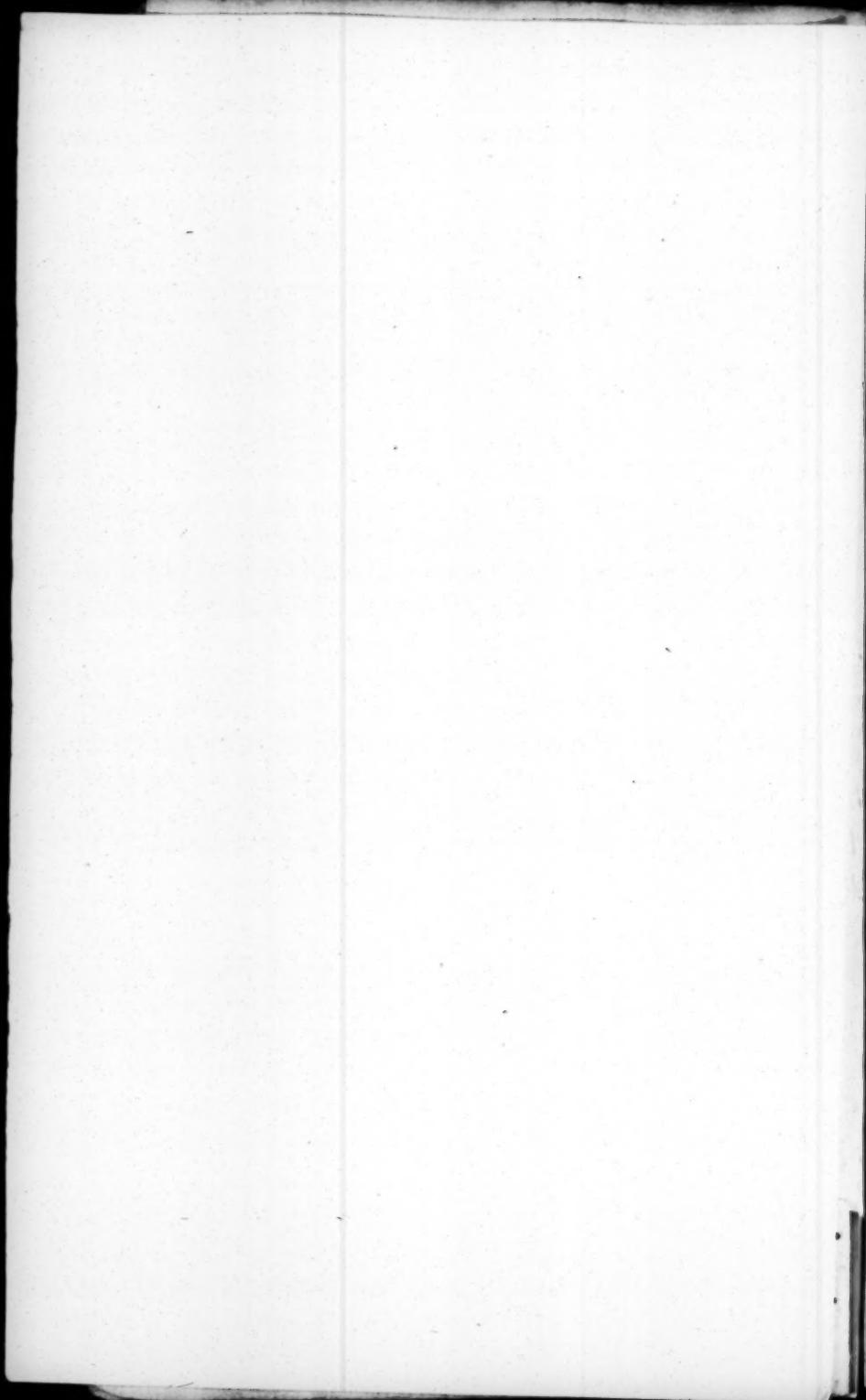
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TO this Edition, besides the adding of an Evening's Conversation, which was not in the former, there is likewise added, *A Discourse of the same Author, concerning the Antients and Moderns*, which has made some noise in the Learned World, and was never translated before. The *Plurality of Worlds*, and this Piece, are both mention'd by Sir *William Temple*, in his *Essay on Antient and Modern Learning*, the former with great Praise, and the latter with equal Resentment. It is well known which side of the Controversy Sir *William* favour'd. Every one will judge in this, as his Reason or Prejudices sway him. But as the *Plurality of Worlds* is chiefly written on the Improvements made by the Moderns in Philosophy and Astronomy, it was thought that this general Discourse on the Question of Preheminence between the Antients and Moderns was very proper to accompany it.

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1. Mercury. 2. Venus. 3. The Earth. 4. Mars. 5. Jupiter. 6. Saturn





A
 PLURALITY
 OF
 Worlds.



YOU would have me, Sir,
 give you an exact account
 how I pass'd my time in
 the Country, at the Coun-
 tess of D——'s. Are
 you sensible such an exact Account
 will amount to a Volume? Nay (what
 is worse) a Volume of Philosophy? I
 know you expect another kind of En-
 tertainment, Dancing, Gaming, Hun-
 ting,

ting, &c. but you must take up with Vortex's, Planets, and New Worlds; these were the Subject of our Conversation. And by good luck you are a Philosopher, so that it will be no great disappointment, nay, I fancy, you will be pleas'd, that I have brought over the Countess to our Party; we could not have gain'd a more considerable Person, for Youth and Beauty are ever inestimable: If Wisdom would appear with success to Mankind, do you think she would not do well to take upon her the Person of the Countess? And yet was her Company but half so agreeable, all the World would run mad after Wisdom. But tho I tell you all the Discourse I had with the Lady, you must not expect Miracles from me. It is impossible without her Wit, to express but what she said, in the same manner she spake it: For my part, I think her very Learned, from the great Disposition she hath to Learning. Is it a poring upon Books that makes a Man of Understanding? I know many that have done nothing else, and yet I fancy are not one tittle the wiser.

wiser. But perhaps you expect, before I enter upon my Subject, I should describe the Lady's House, with all its Situation; many great Palaces have been turned inside outward upon far less occasion. But I intend to save you and my self that labour; let it suffice that I tell you, I found no Company with the Countess, and I was not at all displeas'd with it. The two first days drain'd me of all the News I brought from *London*; what I now send you is the rest of our Conversation, which I will divide into so many Parts as we were Evenings together.



The First Evening.

WE went one Evening after Supper to walk in the Park: the Air was extremely refreshing, because that Day had been very hot; the Moon had been up about an hour, and as she shone between the Trees, made an agreeable

able Mixture of Light and Darkness ; the Stars were in all their Glory, and not a Cloud appear'd on the azure Sky : I was musing on this awful Prospect ; but who can think long of the Moon and Stars in the Company of a pretty Woman ! I am much mistaken if that's a time for Contemplation : Well, Madam, *said I to the Countess*, is not the Night as pleasant as the Day ? The Day, *said she*, like a fair Beauty, is clear and dazzling ; but the Night, like a brown Beauty, more soft and moving. You are generous, Madam, *I reply'd*, to prefer the Brown, you that have all the Charms that belong to the Fair ; but is there any thing more beautiful in Nature than the Day ? The Heroines of Romances are generally fair ; and that Beauty must be perfect, which hath all the Advantages of Imagination. Tell not me, *said she*, of perfect Beauty, nothing can be so that is not moving. But since you talk of Romances, why do Lovers in their Songs and Elegies address themselves to the Night ? 'Tis the Night, Madam, *said I*, that crowns their Joys, and therefore deserves

a Plurality of Worlds.

5

serves their thanks: But 'tis the Night, *said she*, that hears their Complaints; and how comes it to pass the Day is so little trusted with their Secrets? I confess, Madam, *said I*, the Night hath somewhat a more melancholy Air than the Day; we fancy the Stars march more silently than the Sun, and our Thoughts wander with the more liberty, whilst we think all the World at rest but our selves: besides, the Day is more uniform, we see nothing but the Sun, and Light in the Firmament; whilst the Night gives us variety of Objects, and shews us ten thousand Stars, which inspire us with as many pleasant Ideas. What you say is true, *said she*; I love the Stars, there is somewhat charming in them, and I could almost be angry with the Sun for effacing them. I can never pardon him, *I cry'd*, for keeping all those Worlds from my Sight. What Worlds, *said she*, looking earnestly upon me, what Worlds do you mean?

I beg your pardon, Madam, *said I*; you have put me upon my Folly, and I begin to rave. What Folly, *said she*? *I*

B 3

discover

discover none. Alas, *said I*, I am ashamed, I must own it, I have had a strong fancy every Star is a World. I will not swear it is true, but must think so, because it is so pleasant to believe it: 'tis a fancy come into my head, and is very diverting. If your Folly be so diverting, *said the Countess*, pray make me sensible of it; provided the pleasure be so great, I will believe of the Stars all you would have me. It is, *said I*, a Diversion, Madam, I fear you will not relish; 'tis not like one of *Moliere's Plays*: 'tis a Pleasure rather of the Fancy than of the Judgment. I hope, *reply'd she*, you do not think me incapable of it: teach me your Stars, I will shew you the contrary. No, no, *I reply'd*, it shall never be said I was talking Philosophy at ten of the clock at Night to the most amiable Creature in the World; find your Philosophers somewhere else.

But in vain I excus'd my self: who could resist so many Charms? I was forc'd to yield, and yet I knew not where to begin; for to a Person who understood nothing of Natural Philosophy,

m'd, phy, you must go a great way about to
strong prove that the Earth may be a Planet,
not the Planets so many Earths, and all the
be Stars Worlds: however, to give her a
tis a general Notion of Philosophy, I at last
very resolv'd on this Method. All Philoso-
phy, said I, Madam, is founded upon
sible two things, either that we are too short-
sighted, or that we are too curious; for
ould if our Eyes were better than they are,
sion, we should soon see whether the Stars
'tis were Worlds or not; and if on the other
is a side we were less curious, we should not
n of care whether the Stars are Worlds or
u do not; which I think is much to the same
n me purpose. But the Business is, we have a
ntra- mind to know more than we see: And
r be again, if we could discern well what we
n of do see, it would be too much known to us:
able but we see things quite otherwise than
Phi- they are. So that your true Philosopher
who will not believe what he doth see, and is
was always conjecturing at what he doth
not, which is a Life I think not much to
not be envy'd. Upon this I fancy to myself,
who that Nature very much resembleth an
oso- Opera; where you stand, you do not see
phy,

the Stage as really it is; but it is plac'd ~~the~~ with advantage, and all the Wheels and ~~the~~ Movements are hid, to make the Re-^{Phi} presentation the more agreeable: Nor ~~for~~ do you trouble your self how, or by ~~know~~ what means the Machines are mov'd, ~~the~~ tho' certainly an Engineer in the Pit is ~~thinking~~ affected with what doth not touch you; ~~the~~ he is pleas'd with the Motion, and is of ~~the~~ demonstrating to himself on what it de-~~pend~~s, and how it comes to pass. This ~~pro~~ Engineer then is like a Philosopher, ~~tho' of a~~ the Difficulty is greater on the Philo-^{Pha} sopher's part, the Machines of the The-~~ticl~~ atre being nothing so curious as those of ~~per~~ Nature, which disposeth her Wheels and ~~per~~ Springs so out of sight, that we have been ~~the~~ long a guessing at the Movement of the Nu- ~~Univers~~ Universe. Suppose then the Sages at an ~~ter~~ Opera, the *Pythagoras's*, the *Plato's*, the ~~of~~ *Aristotle's*, and all the Wise Men who ~~of~~ have made such a noise in the World, for ~~hat~~ these many Ages; we will suppose 'em ~~be~~ at the Representation of *Phaeton*, where ~~they~~ they see the aspiring Youth lifted up by ~~the~~ the Winds, but do not discover the ~~with~~ Wires by which he mounts, nor know ~~the~~ Sag- ~~they~~

lac'd they any thing of what is done behind
and the Scenes. Would you have all these
Re-Philosophers own themselves to be stark
Nor Fools, and confess ingenuously they
by know not how it comes to pass? No, no,
ov'd, they are not called Wise Men for no
it is thing; tho, let me tell you, most of
you; their Wisdom depends upon the Ignorance
d is of their Neighbours. Every Man pre-
t de-fently gives his Opinion, and how im-
This probable foever, there are Fools enough
, tho of all sorts to believe 'em: One tells you
nili-*Phaeton* is drawn up by a hidden Magne-
The-tick Virtue, no matter where it lies; and
se of perhaps the grave Gentleman will take
and pet if you ask him the Question. Ano-
been ther says, *Phaeton* is compos'd of certain
the Numbers that make him mount; and af-
t an ter all, the Philosopher knows no more
the of those Numbers than a fucking Child
who of *Algebra*. A third tells you, *Phaeton*
for hath a secret Love for the top of the
'em Theatre; and, like a true Lover, cannot
here be at rest out of his Mistress's Company;
o by with an hundred such extravagant Fan-
the cies, that a Man must conclude the old
now Sages were very good Banterers. But
hey

now comes Monsieur *Descartes* with some of the Moderns, and they tell you *Phaeton* ascends, because a greater Weight than he descends; so that now we do not believe a Body can move unless it is push'd and forc'd by another Body, and as it were drawn by Cords, so that nothing can rise or fall but by the means of a Counterpoise; he then that will see Nature really as she is, must stand behind the Scenes at the Opera. I perceive, *said the Countess*, Philosophy is now become very mechanical. So mechanical, *said I*, that I fear we shall quickly be ashame'd of it; they will have the World to be in great, what a Watch is in little, which is very regular, and depends only upon the just disposing of the several parts of the Movement. But pray tell me, Madam, had you not formerly a more sublime Idea of the Universe? Do you not think you did then honour it more than it deserv'd? for most have the less esteem of it since they have pretended to know it. I am not of their opinion, *said she*; I value it the more since I know it resembles

a Watch ; and the whole Order of Nature, the more plain and easy it is, to me it appears the more admirable.

I know not, *said I*, who hath inspir'd you with these solid Notions ; but I am certain there are few that have them besides your self. People generally admire what they do not comprehend, they have a Veneration for Obscurity, and look upon Nature while they do not understand her, as a kind of Magick, and despise her below Legerdemain, when once they are acquainted with her : but I find you, Madam, so much better dispos'd, that I have nothing to do but to draw the Curtain, and shew you the World. That then which appears farthest from the Earth (where we reside) is called the Heavens, that azure Firmament, where the Stars are fastned like so many Nails, and are call'd fix'd, because they seem to have no other Motion than that of their Heaven, which carries them with it self from East to West. Between the Earth and this great Vault (as I may call it) hang

at

at different Heights, the *Sun*, and the *Moon*, with the other Stars, *Mercury*, *Venus*, *Mars*, *Jupiter*, and *Saturn*, which we call the Planets: these Planets, notwithstanding being fastned to the same Heaven, and of haying very unequal Motions, have divers Aspects and Positions; whereas the fixed Stars in respect to one another, are always in the same Situation: for example, *Charles's Wain*, which is compos'd of those seven Stars, hath been, and ever will be, as it now is, tho the Moon is sometimes nearer to the Sun, and sometimes farther from it, and so it is with the rest of the Planets. Thus things appear'd to the Old *Chaldean* Shepherds, whose great leisure did produce these first Observations, which have since been the Foundation of Astronomy; for Astronomy had its Birth in *Chaldea*, as Geodesy was born in *Egypt*, where the Inundation of the *Nile* confounding the Bounds of their Fields, was an occasion of their inventing exacter Measures to distinguish every one's Land from that of his Neighbour. So that Astronomy

my

the my was the Daughter of Idleness, Ge-
ometry the Daughter of Interest ; and
which if we did but examine Poetry, we
not should certainly find her the Daughter
and of Love.

I am glad, said the Lady, I have
earnt the Genealogy of the Sciences,
and am convinc'd I must stick to A-
stronomy ; my Soul is not mercenary
enough for Geometry, nor is it tender
enough for Poetry ; but I have as much
time to spare as Astronomy requires :
beside, we are now in the Country,
and lead a kind of Pastoral Life, all
which suits best with Astronomy. Do
not deceive your self, Madam, said I,
tis not a true Shepherd's Life to talk of
the Stars and Planets : See if they
pass their time so in *Astrea*. That sort
of Shepherd's Craft, reply'd she, is too
dangerous for me to learn : I love the
honest *Chaldeans*, and you must teach
me their Rules, if you would have me
improve in their Science. But let us
proceed. When they had rank'd the
Heavens in that manner you tell me,
pray, what is the next Question ? The
next,

next, said I, is the disposing the several Parts of the Univerſe, which the Learned call *Making a System*: but before I expound the first System, I would have you obſerve, we are all naturally like that Madman at *Athens* who fancy'd all the Ships were his that came into the Port *Pyræum*: Nor is our Folly less extravagant; we believe all things in Nature design'd for our Use; and do but ask a Philosopher, to what purpose there is that prodigious company of fixed Stars, when a far less Number would perform the ſervice they do us? he anſwers coldly, they were made to please our Sight. Up on this Principle they imagined the Earth reſted in the Centre of the Univerſe, while all the Celestial Bodies (which were made for it) took the pains to turn round to give light to it. They plac'd the Moon above the Earth, *Mercury* above the Moon, after *Venus* the Sun, *Mars*, *Jupiter*, *Saturn*; above all these they ſet the Heaven of fixed Stars, the Earth was just in the middle of thoſe Circles which contain the

the Planets ; and the greater the Circles were, they were the farther distant from the Earth, and by consequence the farthest Planets took up the most time in finishing their Course, which in effect is true. But why, *said the Countess*, interrupting me, do you dislike this System? It seems to me very clear and intelligible. However, Madam, *said I*, I will make it plainer ; for should I give it you as it came from *Ptolemy* its Author, or some other who have since study'd it, I should fright you, I fancy, instead of diverting you. Since the Motions of the Planets are not so regular, but that sometimes they go faster, sometimes slower, sometimes are nearer the Earth, and sometimes farther from it; the Antients did invent I do not know how many Orbs or Circles involv'd one within another, which they thought would solve all Objections : This Confusion of Circles was so great, that at that time, when they knew no better, a certain King of *Arragon*, a great Mathematician, but not much troubled with Religion, said,

That

That had God consulted him when he made the World, he would have told him how to have framed it better. The Fancy was very atheistical, and no doubt the Instructions he would have given to the Almighty, was the suppressing those Circles with which they had clogg'd the Celestial Motions, and the taking away two or three superfluous Heavens which they plac'd above the fixed Stars: for these Philosophers to explain the Motion of the Celestial Bodies, had above the uppermost Heaven (which we see) found another of Chrystal, to influence and give Motion to the inferior Heavens; and wherever they heard of another Motion, they presently clapp'd up a Chrystal Heaven which cost 'em nothing. But why must their Heaven be of Chrystal, *said the Countess*; would nothing else serve as well? No, no, *I reply'd*, nothing so well; for the Light was to come thro them, and yet they were to be solid. *Aristotle* would have it so, he had found Solidity to be one of their Excellencies; and when he had once said it, no body would be so rude as to question

en he question it. But it seems there were
him Comets much higher than the Philoso-
Fan-bhers expected, which, as they pass'd a-
doubt long, brake the Chrystal Heavens, and
given confounded the Universe: But to make
those the best of a bad Market, they presently
d the melt down their broken Glafs, and to
way Aristotle's Confusion, made the Heavens
hich fluid; and by the Observations of these
for latter Ages it is now out of doubt, that
Mo- *Venus* and *Mercury* turn round the Sun,
ove and not round the Earth, according to
fee) the antient System, which is now every
ence where exploded, and all the *Ipse dixit*
Hea- not worth a rush. But that which I am
f a- going to lay down, will solve all, and is
op'd so clear, that the King of *Arragon* him-
'em self may spare his Advice. Methinks,
ven *said the Countess*, your Philosophy is a
uld kind of Outcry, where he that offers to
o, I do the Work cheapeſt, carries it from
ight all the rest. 'Tis very true, *said I*, Nature
ney is a great Huswife; ſhe always makes uſe
ave of what coſts leaſt, let the Diſference be
of ever ſo incoſiderable: and yet this
nce Frugality is accompany'd with an extra-
to ordinary Magniſcence, which ſhines
ion thro

thro all her Works; that is, she is magnificient in the Design, but frugal in the Execution: and what can be more praiseworthy than a great Design accomplished with a little Expence? But in our Ideas we turn things topsy-turvy, we place our Thrift in the Design, and are at ten times more charge in Workmanship than it requires, which is very ridiculous. Imitate Nature then, *saith she*, in your System, and give me as little Trouble as you can to comprehend you. Fear it not, Madam, *said I*, we have done with our Impertinencies: Imagine then a German call'd *Copernicus* confounding every thing, tearing in pieces the beloved Circles of Antiquity, and shattering their Chrystal Heavens like so many Glass Windows, feiz'd with the noble Rage of Astronomy, he snatches up the Earth from the Center of the Universe, sends her packing, and placeth the Sun in the Center, to which it did more justly belong; the Planets no longer turn round the Earth, and do not inclose it in the Circles they describe: if they give us light, it is but by chance, and as they meet us in their way.

is man's way. All now turns round the Sun ; in that the Earth herself goes round the Sun, and praiseth *Copernicus*, to punish the Earth for her apish former Laziness, makes her contribute her Ideas all he can to the Motion of the Planets in their place and Heavens ; and now stripp'd of all that she was so gloriously attended, she hath nothing left her but the *Moon*, which still in you turns round about her. Fair and softly, as saith the Countess, I fancy you your self it not are feiz'd with the noble Fury of Astrology ; a little less Rapture, and I shall understand you the better. The Sun, you say, is in the Centre of the Universe, and is immoveable ; what follows next ? It is *Mercury*, said I ; he turns round the Sun, so that the Sun is the Centre of the Circle wherein *Mercury* moves ; above *Mercury* is *Venus*, who turns also round the Sun : after comes the Earth, which being placed higher than *Mercury* and *Venus*, makes a greater Circle round the Sun than either of them ; at last come *Mars*, *Jupiter*, *Saturn*, in the same order I name but 'em, so that *Saturn* hath the greatest Circle round the Sun, which is the reason he

he is a longer time in making his Revolution than any of the other Planets. And the Moon, you have forgot her, *said she*. We shall quickly find her again, *said I*; the Moon turns round the Earth, and doth not leave her, but as the Earth advanceth in the Circle which she describes about the Sun; and if the Moon turns round the Sun, it is because she will not quit the Earth. I understand you, *said she*, and I love the Moon for staying with us when all the other Planets do abandon us; nay, I fear your German would have willingly taken her away too if he could, for in all his Proceedings I find he had a great Spite to the Earth. 'Twas well done of him, *said I*, to abate the Vanity of Mankind, who had taken up the best place in the Universe, and it pleaseth me to see the Earth in the Crowds of the Planets. Sure, *said she*, you do not think their Vanity extends itself as far as Astronomy! Do you believe you have humbled me, in telling me the Earth goes round the Sun? For my part I do not think myself at all the worse for't. I confess, *said I*, Madam, I believe

fair Lady would be much more concern'd for her Place at a Ball, than for her Rank in the Universe: and the Pre-
cedence of two Planets will not make half such a noise in the World as that of
two Ambassadors. However the same
inclination which reigns at a Ceremony,
governs in a System; and if you love the
uppermost Place in the one, the Philoso-
pher desires the Centre in the other: he
atters himself that all things were made
for him, and insensibly believes a matter
of pure Speculation to be a point of Inter-
est. This is a Calumny, *said she*, you
have invented against Mankind; why
did they receive this System, if it was so
basing? I know not, *said I*, but I am
sure *Copernicus* himself distrusted the Suc-
cess of his Opinion, he was a long time
before he would venture to publish it,
nor had he done it then without the Im-
portunity of his Friends. But do you
know what became of him? the very
Day they brought him the first Proof of
his Book, he dy'd: he foresaw he should
never be able to clear all the Contradic-
tions, and very wisely slipt out of the way.

I would be just to all the World, *said the Countess*, but 'tis hard to fancy we move, and yet see we do not change our Place; we find our selves in the Morning where we lay down at Night: Perhaps you will tell me the whole Earth moves. Yes certainly, *said I*, it is the same case as if you fell asleep in a Boat upon the River; when you awake you find your self in the same Place and the same Situation in respect of all the Parts of the Boat. 'Tis true, *she reply'd*; but here's a great difference, when I awake, I find another Shore, and that shews me my Boat hath changed place; but 'tis not the same with the Earth: I find all things as I left 'em. No, no, *said I*, there is another Shore too; you know that beyond the Circles of the Planets are fixed Stars, there is our Shore. I am upon the Earth, and the Earth makes a great Circle round the Sun, I look for the Center of the Circle, and see the Sun there; I then direct my Sight beyond the Sun in a right Line, and should certainly discover the fixed Stars which answer to the Sun, but that the Light of the Sun effaceth 'em: But at night I easily perceive

did then receive the Stars which corresponded with
move him in the Day, which is exactly the
place same thing ; if the Earth did not change
where its Place in the Circle where it is, I
will should see the Sun always against the
same fixed Stars ; but when the Earth
as it doth change its Place, the Sun must an-
swer to other Stars ; and there again is
self in your Shore, which is always changing.
And seeing the Earth makes her Circle
'Tis in a Year, I see the Sun likewise in the
diffe. space of a Year answer successively to
other the whole Circle of the fixed Stars,
which Circle is called the Zodiack ; I
will draw you the Figure of it, if you
please, on the Sand. 'Tis no matter,
too; *said she*, I can do well enough without
the it ; beside, it will give an Air of Learn-
ing to my Park, which I would not
have in it : For I have heard of a cer-
tain Philosopher, who being shipwreck'd
Sun and cast upon an unknown Island, see-
ing several Mathematical Figures tra-
inlyed on the Sea-shore, cry'd out to
those that follow'd him, Courage, Cou-
rage, my Companions, the Isle is in-
habited ; behold the Footsteps of Men :
But

But you may spare your Figures ; such
Footsteps are not decent here.

I confess, *said I*, Madam, the Foot-
steps of Lovers would better become this
Place ; that is, your Name and *Pla-*
Cypher grav'd on the Trees by your
Adorers. Tell not me, *said she*, of no
Lovers and Adorers ; I am for my be-
loved Sun and Planets. But how comes
it to pass that the Sun, as to the fixed
Stars, compleats his Course but in a Su-
Year, and yet goes over our Heads eve-
ry day ? Did you never, *I reply'd*, ob-
serve a Bowl on a Bowling-Green ? It
runs towards the Block, and at the same
time turns very often round itself, so
that the Parts which were above are
below, and those which were below are
above ; just so it is with the Earth at
the same time that she advanceth on the
Circle, which in a Year's space she makes
round the Sun ; in twenty four hours
she turns round herself ; so that in twen-
ty four hours every part of the Earth
loseth the Sun, and recovers him again,
and as it turns towards the Sun, it
seems to rise ; and as it turns from
him,

such him, it seems to fall. It is very pleasant, *said she*, that the Earth must take Foot all upon her self, and the Sun do no-
thing. And when the Moon, the other
Planets and the fixed Stars seem to go
your over our Heads every twenty four
hours, you'll say that too is only Fan-
cy? Pure Fancy, *said I*, which pro-
ceeds from the same Cause; for the Pla-
netes compleat their Courses round the
Sun at unequal times, according to their
ever unequal distances; and that which we
ob-see to-day answser to a certain Point
? It in the Zodiack or Circle of the fixed
Stars, to-morrow we see answser to an-
other Point, because it is advanc'd on
its own Circle, as well as we are ad-
vanc'd upon ours. We move, and the
Planets move too, which must make a
great Alteration; so that what seems
irregular in the Planets, proceeds only
hours from our Motion, when in truth they
are all very regular. I will suppose 'em
so, *said the Countess*; but I would not
gain, have their Regularity put the Earth to
so great Trouble: methinks you exact
from too much Activity from so ponderous
him,

a Mass. But, *said I*, had you rather that the Sun and all the Stars, which are vast great Bodies, should in twenty four hours travel such an Infinity of Miles, and make so prodigious a *Tour* as they needs must, if the Earth did not turn round it self every twenty four hours? Oh, *said she*, the Sun and the Stars are all Fire, their Motion is not very difficult; but the Earth, I fancy, is a little unwieldy. That signifies nothing, *I reply'd*, for what do you think of a First-Rate Ship, which carries near an hundred Guns, and a thousand Men, besides her Provisions and other Furniture? you see one Puff of Wind makes it fail on the Water, because the Water is liquid, and being easily separated, doth very little resist the Motion of the Ship: So the Earth, tho' never so massive, is as easily borne up by the Celestial Matter, which is a thousand times more fluid than the Water, and fills all that great Space where the Planets float; for where would you the Earth should be fastned to resist the Motion of the Celestial Matter, and no

be driven by it? You may as well fancy a little Block of Wood can withstand the Current of a River. But pray, *said she*, how can the Earth, with all its Weight, be borne up by your Celestial Matter, which must be very light, because it is so fluid? It doth not argue, *said I*, that what is most fluid is most light: for what think you of the great Vessel I mention'd but now, which with all its Burden is yet lighter than the Water it floats on? I will have nothing to do with that great Vessel, *said she*; and I begin to apprehend myself in some danger on such a Whirligig as you have made of the Earth. There is no danger, *I reply'd*: but, Madam, if you are afraid, we will have the Earth supported by four Elephants, as the *Indians* believe it. Hey day, *cry'd she*, here's another System; however, I love those People for taking care of themselves; they have a good Foundation to trust to, while you *Copernicians* are a little too venturous with the Celestial Matter: and yet I fancy, if the *Indians* thought the Earth

in the least danger of sinking, they would double their Number of Elephants. They do well, *said I*, laughing at her Fancy, who would sleep in Fear? and if you have occasion for 'em to-night, we will put as many as you please in our System; we can take 'em away again by degrees, as you grow better confirm'd. I do not think 'em very necessary, *said she*; I have courage enough to turn. You shall turn with pleasure, Madam, *said I*, and shall find delightful Ideas in this System: For example, sometimes, I fancy my self suspended in the Air without any Motion, while the Earth turns round me in twenty four hours; I see I know not how many different Faces pass under me, some white, some black, and some tauny; sometimes I see Hats, and sometimes Turbants; now Heads with Hair, and then shav'd Heads; here I see Cities with Steeples, others with Spires and Crescents, others with Towers of Porcelain, and anon great Countreys with nothing but Cottages: here I see vast Oceans, and there most horri-

horrible Desarts: In short, I discover the infinite Variety which is upon the Surface of the Earth. I confess, *said she*, twenty four hours would thus be very well bestow'd, so we were in the same place where we are now, I do not mean in the Park; but we will suppose our selves in the Air, other People continually passing by, who take up our Place, and at the end of twenty four hours we return to it again.

Copernicus himself, *said I*, could not have comprehended it better: First then, we see some of our Neighbours passing by us, up to the Ears in Politicks, yet settling their Nation no better than we do the World in the Moon; then follows a great Sea, perhaps a Fleet of Ships, perhaps a Mackrel-Boat, no matter whether; then come some of the *Iroquois* going to eat a Prisoner for their Breakfast, who seems as little concern'd as his Devourers; after appear the Women of the Land of *Jeффo*, who spend all their time in dressing their Husbands Dinners, and Suppers, and painting their Lips and Eyebrows blue, only

to please the greatest Villains in the
World; then the fair *Circassians*, who
are very free of their Favours, and
grant all to the first Comer, except a
little they reserve for their Husbands;
then the *Tartars* going to steal Concu-
bines for the *Turks* and *Persians*; and at
last our own dear Countrymen, it may
be in some Points as ridiculous as the
best of 'em. It is very pleasant, *said*
the Countess, but to imagine what you
tell me: tho if I was above, and saw
all this, I would have the liberty to
hasten or retard the Motion of the Earth,
according as the Objects pleas'd me
more or less; and I assure you I should
quickly send packing the *Politicians* and
Man-eaters, but should have a great Cu-
riosity for the fair *Circassians*, for me-
thinks they have a Custom very particu-
lar. They are so extremely beautiful,
said I, that their Husbands have enough
and to spare to a Stranger. I fear
then, *said she*, the Women of our Coun-
try are very ugly, in respect of those
fair Ladies; for the Husbands part
with nothing here, but keep all to them-
selves.

in themselves. 'Tis because they make more
noise, *I reply'd*, of — Hold your peace,
and *said she*, and no more of your Fooleries.
I have a Difficulty to clear, and you
must be serious. As the Earth moves,
the Air changeth every Moment, so we
breathe the Air of another Country.
Not at all, *I reply'd*; for the Air which
encompasseth the Earth, doth not extend
above a certain Height, perhaps twen-
ty Leagues; it follows us, and turns with
us. Have you not seen the Work of a
Silk-Worm, the Shells which those lit-
tle Animals imprison themselves in, and
weave with so much Art? they are
made of a Silk very close, but are cov-
ered with a Down very slack and soft:
So the Earth, which is solid, is cover'd
from the Surface twenty Leagues up-
wards with a kind of Down, which
is the Air, and all the Shell of the Silk-
Worm turns at the same time. Be-
yond the Air is the Celestial Matter, in-
comparably more pure and subtle, and
much more agitated than the Air. Your
Comparison, *said she*, is somewhat mean,
and yet what Wonders are wrought,

what Wars, what Changes in this little Shell? 'Tis true, *I reply'd*; but Nature takes no notice of such little particular Motions, but drives us along with the general Motion, as if she were at Bowls. Methinks, *said she*, 'tis very ridiculous to be upon a thing that turns, and yet not be well assur'd that it doth turn; and to tell you the truth, I begin to distrust the Reasons you give why we should not be sensible of the Motion of the Earth; for is it possible there should not some little Mark be left, by which we might perceive it?

All Motions, *said I*, the more common and natural they are, are the less perceptible; and this holds true even in Morality. The Motion of Self-love is so natural to us, that for the most part we are not sensible of it, and we believe we act by other Principles. You are Moralizing, *said she*, to a Question of Natural Philosophy: But 'tis enough for the first time; let us now go home, and meet here again to-morrow, you with your Systems, and I with my Ignorance.

In

In returning back to the Castle, that
might say all I could on the Subject, I
old her of a third System, invented by
Echo Brahe, who had fixed the Earth in
the Centre of the World, turn'd the Sun
round the Earth, and the rest of the Plan-
ets round the Sun ; for since the new
Discoveries, there was no way left to
have the Planets turn round the Earth.
But the Countess, who had a quick Ap-
prehension, said, she thought it was too
affected, among so many great Bodies,
to exempt the Earth only from turn-
ing round the Sun ; that it was impro-
per to make the Sun turn round the
Earth, when all the Planets turn round
the Sun : and that tho' this System was
to prove the Immobility of the Earth,
yet she thought it very improbable. So
we resolv'd to stick to *Copernicus*, whose
opinion we thought most uniform, pro-
bable, and diverting.



The Second Evening.

IN the Morning I sent to the Countess's Apartment, to know how she had rested, and whether the Motion of the Earth had not disturbed her? She answer'd, she began to be accustomed to it, and that she had slept as well as *Copernicus* himself. Soon after, there came some Neighbours to dine with her; but they went away in the Evening; so that after Supper we walk'd again into the Park, and immediately fell upon our Systems. She so well conceiv'd what I told her the Night before, that she desir'd I would proceed without any Repetition. Well, Madam, said I, since the Sun, which is now immoveable, hath left off being a Planet, and the Earth which turns round him, is now become one, you will not be surpriz'd when you hear that the Moon is an Earth too, and that she is inha-

inhabited as ours is. I confess, *said she*, have often heard talk of the World in the Moon, but I always look'd upon it as visionary, and mere Fancy. And it may be so still, *said I*; I am in this case as People in a Civil War, where the uncertainty of what may happen makes them hold intelligence with the opposite party: for tho' I verily believe the Moon is inhabited, I live civilly with those who do not believe it; and I am as some honest Gentlemen in point of Religion) still ready to embrace the prevailing Opinion: but till the Unbelievers have a more considerable Advantage, I am for the People in the Moon.

Suppose there had never been any communication between *London* and *Greenwich*, and a Cockney who was never beyond the Walls of *London*, saw *Greenwich* from the top of a Pyramid, you ask him if he believes *Greenwich* is inhabited as *London* is? He presently answers, No: for, *saith he*, I see People at *London*, but none at *Greenwich*, nor did I ever hear of any there. 'Tis true, you

you tell him, that from the Pyramid he cannot perceive any Inhabitants at Greenwich, because of the Distance ; but all that he doth discover of Greenwich very much resembleth what he sees at London, the Steeples, Houses, Walls ; so that it may very well be inhabited. London is : all this signifies nothing, my noble Cockney still persists, Greenwich is not inhabited, because he sees no body there. The Moon is our Greenwich, and every first one of us as mere Cockneys as he that never was out of the Sound of Bow Bell. You are too severe, said she, upon your Fellow-Citizens ; we are no all sure so silly as your Cockney ; since Greenwich is just as London is, he is a Fool, if he doth not think it inhabited. But the Moon is not at all like the Earth. Have a care of what you say, I reply'd, for if the Moon resembleth the Earth, you are under a necessity to believe it inhabited. If it be so, said she, I own much I cannot be dispens'd from believing it, and you seem so confident of it, that I fear I must, whether I will or no. 'Tis true, the two Motions of the Earth Air

(which

which I could never imagine till now) also a little stagger me as to all the rest: but yet how is it possible the Earth should enlighten as the Moon doth, without which they cannot be alike? ; if that be all, *said I*, the Difference is not great, for 'tis the Sun which is the, mighty Fountain of Light: that Quality not in proceeds only from him; and if the Planets give Light to us, it is because they never first receive it from the Sun: the Sun then sends Light to the Moon, and she reflects it back on the Earth: the Earth in the same manner receives Light from the Sun, and sends it to the Moon; for the Distance is the same between the Earth and the Moon, as between the Moon and the Earth. But is the Earth, *said the Countess*, as fit to send back the Light of the Sun, as the Moon is? You are altogether for the Moon, *said I*, she is much oblig'd to you; but you must know that Light is made up of certain little Balls, which rebound from what is solid, but pass thro what admits of an entrance in a right Line, as Air or Glass; so that that which makes

the

Moon enlighten us, is, that she is ~~so~~ firm and solid Body, from which the little Balls rebound ; and we must deny, our Senses, if we will not allow the Earth the same Solidity. In short, the Difference is how we are seated ; for the Moon being at so vast a distance from us, we can only discover her to be a Body of Light, and do not perceive ~~that~~ she is a great Mass, altogether like the Earth : whereas, on the contrary, because we are so near the Earth, we know her to be a great Mass, but do not discover her to be a Body of Light, for want of the due distance. It is just so with us all, *said the Countess* ; we are dazled with the Quality and Fortune of those who are above us ; when, do but ~~ever~~ look to the bottom, and we are all ~~wh~~ alike.

Very true, *said I* ; we would judge of all things, but still stand in the wrong place : we are too near to judge of our selves, and too far off to know others. So that the true way to see things as they are, is to be between the Moon and the Earth, to be purel a

Spectator

is spectator of this World, and not an Inhabitant. I shall never be satisfy'd, *said* denie, for the Injustice we do the Earth, v th' and the too favourable Opinion we have t, th' of the Moon, till you assure me that or the People in the Moon are as little ac- from quainted with their Advantages as we be are with ours, and that they take our ceive Earth for a Planet, with out knowing like theirs is one too. Do not doubt it, *said* trary; we appear to them to perform very , we regularly our Function of a Planet. 'Tis it do true, they do not see us make a Circle light round them, but that is no great mat- s juster. That half of the Moon which was e are turn'd towards us at the beginning of ne of the World, hath been turn'd towards us o but ever since; the Eyes, Mouth, and Face, e all which we have fancied of the Spots in er, are still the same; and if the other udge opposite half should appear to us, we the should no doubt fancy another Figure udge from the different Spots that are in it: now Not but that the Moon turns upon her see self, and in the same time that she turns the round the Earth, that is in a Month; l about while she is making that turn upon ator her

her self, and that she should hide a Chee
for example, and appear somewhat ell
to us, she makes a like part of her Circ
round the Earth, and still presents to u
the same Cheek: so that the Moon, wh
in respect of the Sun and Stars, turn
round her self; in respect of us, doth no
turn at all: they seem to her to rise
and set in the space of fifteen days; but
for our Earth, it appears to her to be
held up in the same place of the Hea
vens. 'Tis true, this apparent Immobi
lity is not very agreeable for a Body
which should pass for a Planet, but it is
not altogether perfect; the Moon hath
a kind of trembling, which causeth a lit
tle Corner of her Face to be sometimes
hid from us, and a little Corner of the
opposite half appears; but then, upon
my word, she attributes that trembling to
us, and fancies that we have in the Hea
vens the Motion of a *Pendulum*, which
vibrates to and fro.

I find, *saith the Countess*, the Planets
are just like us; we cast that upon o
thers which is in ourselves; the Earth
saith, 'Tis not I that turn, 'tis the Sun;
the

Ev. 1 a Plurality of Worlds. 41

the Moon saith, 'tis not *I* that shake,
is the Earth ; there is a great deal of
tumour every where. But I would not
advise you, *said I*, to undertake the
forming it ; you had better convince
your self of the entire Resemblance of
the Earth and the Moon. Imagine
then these two great Bowls held up in
the Heavens, you know that the Sun
ways enlightens the one half of a Bo-
wly that is round, and the other half is
in the Shadow : there is then one half of
the Earth, and one half of the Moon,
which is enlightned by the Sun ; that
which hath Day, and the other half
which is Night. Observe also, that as
Ball hath less force after it hath been
tuck against a Wall, which sends it to
the other side ; so Light is weakned
when it is reflected. This pale Light
which comes to us from the Moon, is
the very Light of the Sun ; but it can-
not come to us from the Moon but by
reflexion : it hath lost much of the force
and lustre it had when it came directly
from the Sun upon the Moon ; and that
bright Light which shines directly upon
us

us from the Sun, and which the Earth reflects upon the Moon, is as pale and weak when it arrives there: So the Light which appears to us in the Moon, and which enlightens our Night, is the Parts of the Moon which hath Day; and that part of the Earth which hath Day, when it is opposite to the part of the Moon which hath Night, I gives Light to it. All depends upon how the Moon and the Earth behave one another. At the beginning of the Month, we do not see the Moon, because she is between the Sun and us, that half of her which hath Day, then turned toward the Sun; and that half which hath Night, turn'd toward us, we cannot see it then, because it hath no Light upon it: but that half of the Moon which hath Night, being turned to the half of the Earth which hath Day, fees us without being perceiv'd; and we then appear to the just as the Full-Moon doth to us. Soon that, as I may say, the People of the Moon have then a full Earth; but the Moon being advanc'd upon her Circle,

the Earth a Month, comes from under the Sun, and begins to turn towards us a little. So the corner of the half which is Light; in there's the Crescent: then those parts of the Moon which have Night do not have all the half of the Earth which hath Day, and we are then in the Wayn to them.

Night I comprehend you very well, *said the* People in the Moon have Month quite contrary to us; when we have a full Moon, their half of the Moon, which is Light is turned to our half of the Earth which is dark; they do not see us at all, and they have then a new Earth, this is plain. But now tell me how come the Eclipses? You may easily guess that, *said I*; when it is new Moon, that she is between the Sun and us, and her dark half is turned towards us who have Light, that obscure Shadow cast upon us; if the Moon be directly under the Sun, that Shadow hides him from us, and at the same time obscures of the part of that half of the Earth which Light, which was seen by that half of the Moon which was dark: here then is

is an Eclipse of the Sun to us during our Day, and an Eclipse of the Earth to the Moon during her Night. When it is full Moon, the Earth is between the Sun and the Moon, and all the dark half of the Earth is turned towards all the light half of the Moon ; the Shadow then of the Earth casts it self towards the Moon, and if it falls on the Moon, it obscures that light half which we see, which happens then Day, and hinders the Sun from shining on it. Here then is an Eclipse of the Moon to us during our Night, and an Eclipse of the Sun to the Moon during our Day : but the reason that we have not Eclipses every time that the Moon is between the Sun and the Earth, or the Earth between the Sun and the Moon, is, because these three Bodies are not exactly placed in a right Line, and by consequence that that should make the Eclipse, casts its Shadow a little beside that which should be obscured.

I am surprized, *said the Countess*, that there should be so little Mystery in Eclipses, and that the whole World should not know the cause of 'em. Nor new

durall, said I, as some People go about
the Earth. In the *East-Indies*, when the Sun
and the Moon are in Eclipse, they be-
-en believe a certain Devil who hath black
-aws is feizing on those Planets with
-ight haws Talons; and during that time the
ivers are cover'd with the Heads of
Modians, who are up to the Neck in
bscun later, because they esteem it a very
ch hawt Posture, to implore the Sun and
n from the Moon to defend themselves against
Eclipse Devil. In *America*, they are per-
-uaded that the Sun and the Moon, when
-lipped, are angry; and what is it they
-ll not do to be reconciled with them?
-at the *Greeks*, who were so refined, did
-t not believe the Moon was enchant-
-ed, and that the Magicians forc'd her to
-ies ascend from Heaven, and shed a dan-
-ous Juice on the Plants? Nay,
-that a panick Fear were we in, above
-ttle forty Years ago, at an Eclipse of the
-un? How many People hid themselves
-s, their Cellars; and all the Philoso-
-ers of *Gresham* could not persuade
-hem to come out till the Eclipse was
-er newer?

with
Methinks,

Methinks, *said she*, 'tis scandalous for
Men to be such Cowards; there ought
to be a general Law of Mankind
to prohibit the discoursing of Eclipses, that
we might not call to mind the Follies
that have been said and done upon that
Subject. Your Law then, *said I*, must
abolish even the memory of all things
and forbid us to speak at all, for I know
nothing in the World which is not
Monument of the Folly of Man.

But what do you think, *said she*, of
the People in the Moon; are they as
afraid of an Eclipse as we are? It would
be very Burlesque for the *Indians* the
to be up to the Neck in Water; the
the *Americans* should believe the Earth
angry with them; the *Greeks* fancy
were bewitched, and would destroy the
Plants; in short, that we should cause
the same Consternation among them, what
they do here. And why not, *said she*?
I do not doubt it at all; for why should
the People of the Moon have more
Wit than we? What right have they
to affright us, and not we them? If
my part, I believe that since a profound
gio

us famous Company of Men have been and
though all are such Fools to adore the Moon,
and there are People in the Moon that wor-
ship the Earth, and that we are upon
our Knees the one to the other. But
in theire, *said she*, we don't pretend to
mind any Influences to the Moon, and to
hing give a Crisis to her Sick; if the People
know have any Wit in those Parts, they will
not soon destroy the Honour we flatter our-
selves with, and I fear we shall have the
be, disadvantage.

as Fear it not, Madam, *said I*; do you
wouink we are the only Fools of the Uni-
verser? Is it not consistent with Ignor-
ance, to spread it self every where?
Ear Tis true, we can only guesst at the
acy wolly of the People in the Moon, but I
y the o more doubt it, than I do the most au-
l cumentick News that comes from thence.
em, What News comes from thence, *said*
said she? That which the Learned bring us,
shou reply'd, who travel thither every day
with their Tubes and Telescopes: they
e therill tell you of their Discoveries there,
? If Lands, Seas, Lakes, high Mountains,
proond deep Abysses.

I fancy indeed, *said she*, they may discover Mountains and Abysses, because of the remarkable Inequality ; but how do they distinguish Lands and Seas ? Very easily, *said I* ; for the Waters letting part of the Light pass thro them, send back but a very little, so that they appear afar off like so many dark Spots whereas the Lands being solid, reflect the whole Light, and appear to be more bright and shining : nay, they pretend to be so well acquainted with the several Parts, that they have given them all Appellative Names : one place they call *Copernicus*, another *Archimedes*, another *Galileus* ; there is the *Caspian-Sea*, the *Black-Lake*, the *Porphirite Mountains* : in short, they have publish'd such exact Description of the Moon, that a very Almanack maker will be no more to seek there than I am in *London*.

I must own then, *said the Countess*, they are very exact ; but what do they say to the inside of the Country ? *she* would very fain know that. 'Tis impossible, *I reply'd* ; Mr. Flamsted himself, one of the most Learned Astronomers

mers of our Age) cannot inform you. You must ask that of *Astolfo*, who was carried into the Moon by St. *John*. I am going to tell you one of the agreeable Follies of *Ariosto*, and I am confident you will be well pleased to hear it: I must confess he had better have let alone St. *John*, whose Name is so worthy of Respect, but 'tis a Poetical Licence, and must be allow'd. The Poem is dedicated to a Cardinal, and a great Pope hath honour'd it with his Approbation, which is prefix'd to several of the Editions: this is the Argument; *Rowland Nephew to Charlemain*, falls mad because the fair *Angelica* prefers *Medore* before him. *Astolfo* a Knight-Errant, finding himself one day in the terrestrial Paradise, which was upon the top of a very high Mountain, whereto he was carried by his flying Horse, meets St. *John* there, who tells him, if he would have *Rowland* cured, he must make a Voyage with him into the Moon. It is impossible, who had a great mind to see himself Countries, did not stand much upon ceremony, and immediately there came a

fiery Chariot which carried the Apostle and the Knight up into the Air. *Astolfo* being no great Philosopher, was surpriz'd to find the Moon so much bigger than it appear'd to him when he was upon the Earth; to see Rivers, Seas, Mountains, Cities, Forests, nay, what would have surpriz'd me too, Nymphs hunting in those Forests: but that which was most remarkable, was a Valley where you might find any thing that was lost in our World, of what nature soever; was Crowns, Riches, Fame, and an Infinity of Hopes; the time we spend in play, and in searching for the Philosopher's Stone; the Alms we give after our Death, the Verses we present to great Men and of a Princes, and the Sighs of Lovers. *Elora* know not, *said she*, what became of the Sighs of Lovers in the time of *Ariosto*, but I fancy there are very few of 'em ascend to the Moon in our days. *Elora* Ah, Madam, *reply'd I*, how many doth the Countess of *D——r* send thither every day? Those that are address'd to her, will make a considerable Heap, and I assure you the Moon keeps a

safe that is lost here below. Yet I
must tell you, *Ariosto* doth but whis-
per it, tho every thing is there, even
to the Donation of *Constantine*, *i. e.* the
Popes have pretended to be Masters of
Rome and *Italy* by virtue of a Dona-
tion which the Emperor *Constantine*
made *Sylvester*; and the truth is, no-
body knows what is become of it. But
what do you think is not to be found
in the Moon? Folly, all that ever
was upon the Earth is kept there still;
but in lieu of it, it is not to be ima-
gined how many Wits (if I may so call
them) that are lost here, are got up into
the Moon, they are so many Vials full
and of a very subtile Liquor, which eva-
porates immediately, if it be not well
opp'd; and upon every one of these
Vials the Names are written to whom
the Wits belong: I think *Ariosto* hath
days leap'd 'em upon one another a little
confusedly; but for order sake, we
will fancy 'em plac'd upon Shelves in a
long Gallery. *Astolfo* wonder'd to see
several Vials full inscrib'd with the
names of the most considerable States-
men,

men, Divines, Lawyers, &c. Bless me, *said he*, is my Lord ——— and my Lord ——— here! Sir *Tho.* Sir *Jo.* nay, Doctor ———, and Father ——— too! Why in my Country we look upon 'em as Oracles, and after all, it seems they are but little better than mad Men, if not stark Fools. I find now the poor Rogue was in the right, tho he was soundly whipp'd for who told the Judge, that he had seen an Afs clothed in Scarlet; and a right Worshipful Alderman, that he knew not which was the greatest Brute of the two, the Beast that bore the Fur, or the Beast that wore it. But had I been there, I should have told *Astolfo*, the fawcy Knave was well enough serv'd for we are not to look upon the Man which but the Place he fills: we are to rev^{er}ge a Magistrate when and wherefor^{ever} we meet him, and to suppose his Merit was the sole cause of his Prefer^{ment}, tho we are certain it came by Bribery or Pimping. But enough of this; let us return to our Vials. *To* * Sir confess the truth, I begin to fear, sin^{b. 36.}

I have entertain'd you with these Philosophical and Poetical Visions, mine there is not very empty: however, 'tis some Consolation to me, that while you are so attentive, you have a little Glass full as well as your Servant: the good Knight found his own Wits amongst the rest, and with the Apostle's leave snuffed it all up his Nose, like so much Queen of *Hungary's* Water; but Ariosto laid, he did not carry it far, it returned again to the Moon a little after.

*—*The Love of one fair Northern Lass,*
Sent up his Wit unto the place it was.

Well, he did not forget *Orlando's* Vial, which was the occasion of his Voyage; but he was cursedly plagu'd to carry it, for *Heroes* Wits are naturally very heavy, and there did not want one drop of it: in conclusion, Ariosto, according to his laudable custom, addresseth himself to his Mistress in this manner:

* Sir Jo. Harrington's Translation of *Orlande Furioso*,
, fin. b. 36.

*Fair Mistress, who for me to Heav'n shall fly,
To bring again from thence my wandring Wit
Which I still lose, since from that piercing Eye,
The Dart came forth that first my Heart did
Nor of my loss at all complain would I, (hit
Might I but keep that which remaineth yet :
But if it still decrease, within short space,
I doubt I shall be in Orlando's case.*

*Yet, well I wot where to recover mine,
Tho not in Paradise, nor Cynthia's Sphere,
Yet doubtless in a Place no les Divine,
In that sweet Face of yours, in that fair Hair,
That ruby Lip, in those two starlike Eyes,
There is my Wit, I know it wanders there ;
And with my Lips, if you would give me leave,
I there would search, I thence would it receive.*

Is not this very fine ? To reason likely
Ariosto, the safest way of losing our Wits hab-
is to be in love ; for you see they do no of
go far from us, we may recover 'em a time
gain at our Lips ; but when we lose 'em sum-
by other means, as for example, by Philo-
losophizing, whip they are gone into find
the Moon, and there is no coming a
'em again when we would. Howe hem-
ver, said the Countess, our Vials have laid

an honourable Station among the Philosophers, when 'tis forty to one but Love fixeth our Wits on an Object we cannot but be ashamed of. But to take away mine entirely, pray tell me, but tell me seriously, if you believe there are any Men in the Moon; for methinks hitherto you have not been very positive. For my part, *said I*, I do not believe there are Men in the Moon: for do but observe how much the Face of Nature is chang'd between this and *China*; other Visages, Shapes, Manners, nay almost other Principles of Reason; and therefore between us and the Moon the Alteration must be much more considerable. In the Lands that have been lately discovered, we can scarce call the Inhabitants Men; they are rather Animals o no of human Shape, and that too sometimes very imperfect, almost without human Reason: he therefore that will y Phil travel to the Moon, must not expect to e into find Men there.

What sort of People will they be
Howe when, *said the Countess?* Troth, Madam,
have *said I*, I know not; for put the case

that we ourselves inhabited the Moon, and were not Men, but rational Creatures, could we imagine, do you think, such fantastical People upon the Earth, as Mankind is? Is it possible we should have an Idea of so strange a Composition, a Creature of such foolish Passions, and such wise Reflections? so learned in things of no use, and so stupidly ignorant of what most concerns him; so much Concern for Liberty, and yet such great Inclinations to Servitude? so desirous of Happiness, and yet so very incapable of being so? The People in the Moon must be wise indeed to suppose all this of us. But do we not see our selves continually, and cannot so much as guess how we were made? So that we are forc'd to say the Gods, when they created us, were drunk with Nectar, and when they were sober again, could not chuse but laugh at their own handy-work. Well, well, said the Countess, we are safe enough then; they in the Moon know nothing of us; but I could wish we were a little better acquainted with them; for it troubles me that we should

see the Moon above us, and yet not know what is done there. Why, *said I*, are you not as much concern'd for that part of the Earth which is not yet discover'd? What Creatures inhabit it, and what they do there? for we and they are carried in the same Vessel: they possess the Prow, and we the Poop, and yet there is no manner of Communication between us; they do not know at one end of the Ship, who lives, or what is done at the other end: and you would know what passeth in the Moon, which is this another great Vessel, sailing in the Heavens at a vast distance from us.

Oh, *said she*; for the Earth, I reckon are't all as good as discover'd, and can guess at the People, tho I never heard word of 'em; for certainly they all resemble us very much, and we may know 'em better when we have a mind to: they will stay where they are, and tis no more but going to see 'em; without we cannot get into the Moon if we would; so that I despair of knowing what they do there. You would see D 5 laugh

laugh at me, *said I*, if I should answer you seriously ; perhaps I may deserve it ; and yet, I fancy, I can say a great deal to justify a ridiculous Thought that is just now come into my Head : nay, to use the Fool's best Argument, I'll lay a Wager I make you own (in spite of Reason) that one of these Days there may be a Communication between the Earth and the Moon ; and who knows what great Advantages we may procure by it ? Do but consider *America*, before it was discover'd by *Columbus*, how profoundly ignorant were those People ? they knew nothing at all of Arts and Sciences ; they went naked, had no other Arms but a Bow and Arrows, and did not conceive they might be carried by Animals : they look'd upon the Sea as a wide Space, forbidden to Man ; that it was join'd to the Heavens, and that beyond it was nothing. 'Tis true, after having spent whole Years in making hollow the Trunks of great Trees with sharp Stones, they put themselves to Sea in these Trunks, and floated from

Land

Land to Land, as the Wind and Waves drove them: But how often was their Trough overset, and they forc'd to recover it again by swimming? So that (except when they were on the Land) it might be said they were continually swimming: and yet had any one but told 'em of another kind of Navigation, incomparably more perfect and useful than their own; that they might easily pass over that infinite Space of Water; that they might stop in the middle of the Waves, and in some sense command the Winds, and make their Vessel go fast or slow, as they pleas'd: in short, that this unpassable Ocean should be no Obstacle to their conversing with another different People; do you think they would have believed you? And yet it last that Day is come: the unheard of and most surprizing Sight appears, vast great Bodies, with white Wings, are seen to fly upon the Sea, to vomit Fire from all Parts, and to cast on their Shores an unknown People, all scaled with Iron, who dispose and govern

govern Monsters as they please, carry Thunder in their Hands, and overthrow and destroy whoever resists them. From whence came they? Who brought them over the Sea? Who gave to them the Disposal of the Fire of Heaven? Are they Gods? Are they Sons of the Sun? for certainly they are not Men. Do but consider, Madam, the Surprize of the *Americans* that there can be nothing greater: and after this, shall any one say there shall never be a Communication between the Moon and the Earth? Did the *Americans* believe there would ever be any between them and *Europe*, till it came to pass? 'Tis true, you must pass the great Space of Air and Heaven which is between the Earth and the Moon, but did not those vast Seas seem as first as impassable to the *Americans*? You rave, I think, said she; did you not own the *Americans* were so ignorant, that they had not the least Conception of crossing the Sea; but what who know a great deal more than they, can imagine and fancy the go

car. ing thro the Air, tho we are assured
it is not to be done. There is some-
what more than Fancy, *I reply'd*, when
it hath been already practis'd, for seve-
eral have found the secret of fastening
Wings, which bear them up in the
Air, to move them as they please, and
to fly over Rivers, and from Steeple to
Steeple. I cannot say indeed they
have yet made an Eagle's Flight, or that
it doth not cost now and then a Leg
or an Arm to one of these new Birds;
but this may serve to represent the first
Planks that were launch'd on the Wa-
ter, and which were the very begin-
ning of Navigation. There were no
Vessels then thought of to sail round
the World; and yet you see what great
Ships are grown by little and little
from those first Planks. The Art of
Flying is but newly invented; it will
improve by degrees, and in time grow
perfect, then we may fly as far as the
Moon. We do not yet pretend to
have discover'd all things, or that what
we have discover'd can receive no Ad-
dition;

dition; and therefore, pray let us agree there are yet many things to be done in the Ages to come. Were you to live a thousand Ages, *said the Countess*, I can never believe you will fly, but you must endanger your Neck. I will not, *I reply'd*, be so unmannerly as to contradict a fair Lady; but tho we cannot learn the Art here, I hope you will allow they may fly better in the Moon: 'tis no great matter whether we go to them, or they come to us; we shall then be the *Americans* who knew nothing of Navigation, and yet there were very good Ships at t'other end of the World. Were it so, *said she*, the People in the Moon would have been here before now. All in good time, *said I*; the *Europeans* were not in *America*, till at the end of some thousands of Years; they were so long in improving Navigation to the point of crossing the Ocean. The People in the Moon have already made some short Voyages in the Air; they are exercising continually, and by degrees will be

be more expert ; then we shall see 'em, and God knows how we shall be surpriz'd. It is unsufferable, *said she*, you should banter me at this rate, and justify your ridiculous Fancy by such false Reasoning. I am going to demonstrate, *said I*, you reproach me very unjustly. Consider, Madam, that the World is unfolded by degrees ; for the Antients were very positive, that the Torrid and Frigid Zones were not inhabitable, by reason of their excessive Heat and Cold : and in the time of the Romans the general Map of the World was but very little extended beyond that of their Empire ; which, tho in one sense, express'd much Grandeur, in another sense, was a Sign of as great Ignorance : however, there were Men found both in very hot and in very cold Countries ; so that you see the World is already encreas'd. After that it was thought that the Ocean cover'd the whole Earth, except what was then discover'd ; there was no talk then of the Antipodes, not so much as

a thought of 'em ; for who could fancy their Heels at top, and their Heads at bottom ? and yet after all their fine Reasoning, the Antipodes were discover'd. Here's now another half of the World starts up, and a new Reformation of the Map : Methinks this, Madam, should restrain us, and teach us not to be so positive in our Opinions ; the World will unfold it self more to us hereafter ; then we shall know the People in the Moon as well as we do now the Antipodes. But all things must be done in order ; the whole Earth must be first discovered ; and till we are perfectly acquainted with our own Habitation, we shall never know that of our Neighbours. Without fooling *said the Countess*, you are so very profound in this Point, that I begin to think you are in earnest, and believe what you say. Not so neither, *said I* ; but I would shew you how easy it is to maintain a chimerical Notion, that may (like some Opinions in Religion) perplex a Man of Understanding, but never

never persuade him: there is nothing
persuades but Truth, it hath no need
of all its Proofs, but enters natural-
ly into our Understanding; and when
once we have learn'd it, we do no-
thing but think of it. I thank you
then, *said she*, for imposing on me no
longer; for I confess your false reason-
ing disturb'd me, but now I shall sleep
very quietly, if you think fit to go
home.



The



The Third Evening.

THE Countess was so intent upon her Notions, that she would fain have engag'd me next day to go on where I left off; but I told her, since the Moon and Stars were become the Subject of our Discourse, we would treat our Chimera's with no body else. At Night we went again into the Parc, which was now dedicated to our learned Conversation.

Well, Madam, said I, I have great News for you; that which I told you last Night of the Moon's being inhabited, may not be so now. There is a new Fancy got into my Head, which puts those People in great danger. I can not suffer it, said she; yesterday you were preparing me to receive a Visit from 'em, and now there are no such Peo-

ple in Nature: Once you would have me believe the Moon was inhabited; I surmounted the Difficulty I had, and will now believe it. You are a little too nimble, *I reply'd*; did I not advise you never to be entirely convinc'd in things of this nature; but to reserve half of your Understanding free and different engag'd, that you may admit of the contrary Opinion, if there be any occasion? I care not for your Sentences, said she, let us come to Matter of Fact. Are we not to consider the Moon as Greenwich? No, said I, the Moon doth not so much resemble the Earth, as Greenwich doth London: The Sun draws learn'd from the Earth and Water, Exhalations and Vapours, which mounting to a certain height in the Air, do there assemble and yond form the Clouds; these uncertain inhabit Clouds are driven irregularly round the Earth, sometimes shadowing one Country, and sometimes another: he then I can who beholds the Earth from afar off, y. you will see frequent Alterations upon its a V. surface, because a great Country over- ch Peas't with Clouds, will appear dark or light,

light, as the Clouds stay, or pass over it; he will see the Spots on the Earth often change their place, and appear or disappear as the Clouds remove: but we see none of these changes wrought upon the Moon, which would certainly be the same, were there but Clouds about her; but on the contrary, all her Spots are fix'd and certain, and her light parts continue where they were at first which truly is a great Misfortune for by this reason, the Sun draws no Exhalations or Vapours above the Moon; so that it appears she is a Body infinitely more hard and solid than the Earth, whose subtile parts are easily separated from the rest, and mount upwards as soon as Heat puts them in motion; but it must be a heap of Rock and Marble, where there is no Evaporation: Besides, Exhalations are so natural and necessary where there is Water, that there can be no Water at all where there is no Exhalation; and what sort of Inhabitants must those be whose Country affords no Water, is all Rock, and produceth nothing? Very fine

over me, said she ; you have forgot
Earth once you assur'd me, we might from
ear on ce distinguish Seas in the Moon ;
: but ay, you or your Friends were God-
ough others to some of 'em. Pray,
tainly what is become of your Caspian-Sea,
ands a nd your Black-Lake ? All Conjec-
ll he ure, Madam, I reply'd ; tho for your
r light ladyship's sake, I am very sorry for it ;
t first or those dark places we took to be
rtune seas, may perhaps be nothing but
ws no rge Cavities ; 'tis hard to guess a-
e the ght at so great a distance. But will
Body his suffice then, said she, to extirpate
an the People in the Moon ? Not altoge-
rily se ther, I reply'd ; we will neither deter-
nt up mine for, nor against them. I must
in mo own my Weakness (if it be one) said
Rock e ; I cannot be so perfectly undeter-
Evapo mined as you would have me to be,
so na ut must believe one way, or the o-
is Wa ther ; therefore pray fix me quickly in
at all by Opinion, as to the Inhabitants of
; and the Moon : preserve or annihilate them,
ose be s you shall think fit ; (and yet me-
, is al thinks I have a strange Inclination for
Very em, and would not have 'em destroy'd,
fine if

if it were possible to fave 'em. You know, Madam, *said I*, I can deny you nothing ; the Moon shall be no longer a Desart, but to do you Setvice, we will repeople her. Since to all appearance the Spots in the Moon do not change, I cannot conceive there are any Clouds about her, that sometimes obscure one part, and sometimes another ; yet this doth not hinder, but that the Moon sends forth Exhalations and Vapours. Our Clouds which we see in the Air, are nothing but Exhalations and Vapours, which at their coming out of the Earth, were separated into such minute Particles, that they could not be discern'd ; but as they ascend higher, they are condens'd by the Cold, and by the re-union of their Parts are render'd visible ; after which they become great Clouds, which fluctuate in the Air, till they return back again in Rain : however these Exhalations and Vapours do sometimes keep themselves so dispers'd, that they are imperceptible ; or if they do assemble, it is in forming such subtile Dews that they can

You cannot be discern'd to fall from any
y you cloud. It may likewise happen, that
longer the Vapours which go out of the Moon
e, we for it is incredible that the Moon is
all approach a Mass, that all its Parts are of an e-
do not equal Solidity, all at rest with one another,
re are and all incapable of any alteration from
etiment the Efficacy of the Sun ; I am sure we
s another are yet unacquainted with such a Body :
, but Marble itself is of another Nature ; and
ations even that which is most solid, is subject
ch w^o change and alteration ; either from
xhalat^o the secret and invisible motion it hath
com^o within itself, or from that which it re-
arated (receives from without) it may so happen
they then, that the Vapours which issue from
ney a^o the Moon, may not assemble round her
oy the Clouds, and may not fall back again
Parts Rain, but only in Dews. It is suffi-
they ent for this, that the Air with which
ctuate the Moon is environ'd, (for it is certain
again that the Moon is encompassed with Air
ations well as the Earth) be a little diffe-
them ent from our Air, and the Vapours of
imper^o the Moon a little different from those
it is of the Earth, which is very probable.
they hereupon the matter being otherwise
can dif-

dispos'd in the Moon than on the Earth, the Effects must be different; tho' it is of no great consequence whether there are or no: for from the moment we have found an inward motion in the parts of the Moon, or produced by foreign Causes, here is enough for the new birth of its Inhabitants, and a sufficient and necessary Fund for their Subsistence. This will furnish us with Corn, Fruit, Water, according to the custom or manner of the Moon, which I do not pretend to know; and all proportion'd to the wants and use of the Inhabitants with whom I pretend to be as little acquainted. That is to say, *reply'd the Countess*, You know all is very well without knowing how it is so, which is a great deal of Ignorance upon a very little Knowledge: However, I comfort myself, that you have given the Moon her Inhabitants again, and have wrapp'd her in an Air of her own, without which a Planet would seem but very naked.

"Tis these two different Airs, *said the Countess*, that hinder the Communication of the two Planets: If it was only flying, as b-

Earth I told you yesterday, who knows but
it we may improve it to perfection, tho'
I confess there is but little hopes of it?
we have the great Distance between the Moon
and the Earth, is a Difficulty not easily
Caus'd to be surmounted: yet were the Dis-
tance but inconsiderable, and the two
Planets almost contiguous, it would be
still impossible to pass from the Air of
Water into the Air of the other. The
Water is the Air of Fishes, they never
pass into the Air of the Birds, nor the
Birds into the Air of the Fish; and
yet 'tis not the Distance that hinders
them, but both are imprison'd by the Air
they breathe in. We find our Air con-
sists of thicker and grosser Vapours than
the Air of the Moon; so that one of
a verier Inhabitants arriving at the Confines
of our World, as soon as he enters our
Moon air, will inevitably drown himself, and
we shall see him fall dead on the
Earth.

I should rejoice at a Wreck, *said the*
said *Countess,* as much as my Neighbours on
of the *Coast of Sussex:* how pleasant would
it be to see 'em lie scattered on the
E Ground,

Ground, where we might consider at the
our ease their extraordinary Figures, & at
But what, *said I*, if they should swim on ~~the~~
the outward Surface of our Air, and be ~~our~~
as curious to see us, as you are to see ~~that~~
them; should they angle or cast a Net ~~only~~
for us, as for so many Fish, would that ~~all w~~
please you? Why not, *said the Countess* ~~supp~~
For my part I would go into their Net ~~nam~~
of my own accord, were it but for ~~noth~~
the pleasure to see such strange Fish ~~all th~~
men.

You would be very sick, said Walter
when you were drawn to the top of our Air ; for it is not respirable in all its Extent, as may be seen on the tops of some very high Mountains : and I ad-
mire that they who have the Folly to believe that our *Fairies*, whom they allow to be corporeal, and to inhabit the most pure and refin'd Air, do not tell us, that the reason why they give us such short and seldom Visits, is, that there are very few among them that can dive, and those that can, if it be possible, will not get through the thick Air where we are, and cannot stay half so long in it, as one of the

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at the worst of Sir Harry Blunt's Sponge-gatherers. Here then are natural Barri-cades, which defend the Passage out of our World, as well as the Entry into that of the Moon: so that since we can not only guess at that World, let us fancy that all we can of it. For example, I will suppose that we may see there the Firmament, the Sun, and the Stars, of another colour than what they are here; that all these appear to us through a kind of natural Spectacles, which change and alter the Objects. These Spectacles are in our Air, mix'd as it is with Vapours and Exhalations, and which doth not extend it self very high. Some of our modern Philosophers pretend, of itself it is blue, as well as the Water of the Sea, and that this Colour neither appears in the one nor in the other, but at a great depth: to the Firmament, say they, where the fix'd Stars are fastned, hath no peculiar Light of its own, and by consequence must appear black; but we see it through the Air which is blue, and therefore to us appears blue; which if so, the Beams of the Sun and Stars cannot pass thro-

the Air without being ting'd a little with ~~able~~
its Colour, and losing as much of their ~~ma~~
own: yet were the Air of no colour, it wo
is very certain, that thro a great Mist, ~~coa~~
the Light of a Flambeaux at some ~~dis~~ me
tance appears reddish, tho it be not its ~~Mr~~
true natural Colour. Our Air is no ~~Co~~
thing but a great Mist, which changeth the
the true Colour of the Sky, of the Sun ~~fail~~
and of the Stars; it belongs only to the ~~ver~~
celestial Matter to bring us the Light ~~and~~
and Colours, as they really are in agree
their purity: so that since the Air ~~Colou~~
the Moon is of another nature than ~~or not a~~
Air, or is stain'd of another Colour, ~~effects~~
at least is another kind of Mist, which ~~the~~
causeth other alterations to the Colou ~~out b~~
of the Celestial Bodies; in short, as Air ~~is~~
the People of the Moon, their Specu ~~perha~~
cles thro which they see every thin ~~inhab~~
are chang'd.

If it be so, *said the Countess*, I prename
my Abode before that of the Moon ~~lac'd~~
for I cannot believe the Celestial Circum
lours are so well suited as they are here
for if you will let us put green ~~St~~ hang
on a red Sky, they cannot be so aga ~~th~~

withable as Stars of Gold on an Azure Firmament. To hear you, *said I*, one would think you was chusing a Petticoat, or a Suit of Knots: but believe me, Nature hath as good a Fancy as Mrs. *Harrison*; leave it to her to chuse Colours for the Moon, and I'll engage they shall be well sorted; she will not fail to vary the Prospect of the Universe, at every different point of Sight, and always the alteration shall be very agreeable. I know very well, *said the Countess*, her Skill in this Point; she is not at the charge of changing the Objects, but only the Spectacles, and hath the credit of this great Variety, without being at any Expence: with a blue Air she gives us a blue Firmament; and perhaps with a red Air, she gives to the inhabitants of the Moon a red Firmament; and yet still it is but the same Firmament: nay I am of opinion, she hath Moon'd a sort of Spectacles in our Imagination, thro which we see all things, and which to every particular Man, can change the Objects. *Alexander* look'd again the Earth as a fit place to establish

blish a great Empire; it seem'd to *Cæladon* a proper Residence for *Astræa*, and when it appear'd to a Philosopher, a great Planet in the Heavens, cover'd with Fools. Now I do not believe the Sights vary more between the Earth and the Moon, than they do between one Man's Fancy and another's.

This change in our Imaginations, *said* you I, is very surprizing; for they are still the same Objects, tho they appear differ-^{ent}; when in the Moon we may see other Objects we do not see here, or at least, not see all there we do see here. Perhaps in that Country they know no-^{thing} of the Dawn and the Twilight ^{the w} before the Sun riseth, and after the Sun sets: the Air which encompasseth, and is elevated above us, receives the Rays ^{spark} so that they cannot strike on the Earth ^{so m} and being gross, stops some of them, and affords 'em to us, tho indeed they were ^{never} naturally design'd us: so that the now Day-break and the Twilight are a Favour which Nature bestows on us; they are a Light which regularly we should ^{not} have, and which she gives us overalls:

and

and above our due. But in the Moon, where apparently the Air is more pure, and therefore not so proper to send down the Beams it receives from the Sun before his rising, and after his setting, than you have not that Light of Grace (as I may call it) which growing greater by degrees, doth more agreeably prepare you for the arrival of the Sun ; and still which growing weaker, and diminishing degrees, doth insensibly prepare you for the Sun's departure : but you are in profound Darkness, where a Curtain (as it were) is drawn all on a sudden, and our Eyes are immediately dazled with the whole Light of the Sun, in all its Glory and Brightness ; so likewise, you are on a sudden surpriz'd with utter Darkness ; the Night and the Day have no medium between them, but you fall, and a moment from one Extreme into the other. The Rainbow likewise is not known to them in the Moon ; for if the Fawn is an effect of the grossness of the Air and Vapours, the Rainbow is form'd on the Clouds, from whence the Rain overalls : so that the most beautiful things

in the World, are produced by those think
which have no beauty at all. Since Pity !
then there are no Vapours thick enough ^{repl'y a}
nor no Clouds of Rain about the Moon do yo
farewel Dawn, adieu Rainbow : What scorch
must Lovers do for Similes in that Coun ^{and no}
try, when such an inexhaustible Magazin ^{Heat}
gazine of Comparisons is taken from that N
them ?

I doubt not, *said the Countess*, but with
there are those in the Moon as good a Mount
Simily, as the greatest Beau in Covent ^{in the}
Garden; and had they neither Sun nor ^{ne}ve
Stars, Pearls nor Rubies, Roses nor ^{Li} Moon
lies, yet could say as many fine things ^{excessi}
to a Vizor-Mask, as the pertest Wit ^{whose}
the Puppet-Show: and they are we ^{so} whi
enough recompens'd for the loss of ou'rem Ci
Dawn and Rainbow ; for by the sam ^{f old} A
reason they have neither Thunder no ^{which}
Lightning, both which are form'd in th'arge a
Clouds : How glorious are their Days fancy
the Sun continually shining? how pleaney liv
fant their Nights, not the least Star is hid 'tis b
from them? They never hear of Storm ^{Cellar},
or Tempests, which certainly are as many
effect of the Wrath of Heaven. Do yo ^{ologshe}
thin

think then they stand in need of our
Pity? You are describing the Moon, *I*
reply'd, like an enchanted Palace; but
do you think it so pleasant to have a
scorching Sun always over our Head,
and not the least Cloud to moderate its
Heat? Tho I fancy 'tis for this reason
that Nature hath made great Cavities
in the Moon: we can discern 'em easily
with our Telescopes, for they are not
Mountains, but so many Wells or Vaults
in the middle of a Plain; and what do
we know but the Inhabitants of the
Moon, being continually broil'd by the
excessive Heat of the Sun, do retire into
those great Wells? perhaps they live
nowhere else, and 'tis there they build
their Cities; for we still see in the Ruins
of old *Rome*, that that part of the City
which was under-ground, was almost as
large as that which was above-ground.
fancy, during the late Siege of *Buda*,
they lived there as they do in the *MOON*,
'tis but going to the *Fountain-Tavern*
Cellar, where the several Vaults are as
many high Streets; the Vats, Pipes,
Logsheads, so many different Edifices

and the Drawers and Coopers, like so many *Troglodites*. I perceive you laugh at me; yet if I may be so free with a fair Lady, you deserve it much better than I: for you believe the People in the Moon must live upon the Surface of their Planet, because we do so upon ours; but quite contrary, since we dwell upon the Superficies of our Planet, they should not dwell upon the Superficies of their Planet: if things differ so much in this World, what must they do in another?

*'Tis no matter, said the Countess, I can never suffer the Inhabitants of the Moon to live in perpetual Darkness. You will be more concern'd for 'em, I reply'd, when I tell you that one of the antient Philosophers did long since discover the Moon to be the Abode of the blessed Souls departed out of this Life, and that all their Happiness consisted in hearing the Harmony of the Spheres; that is, the Musick (I had like to have said Noise) which is made by the motion of the Celestial Bodies: if you have seen a *Raree-Show*, you will easily*

com-

comprehend it. But because the Philosopher pretends to know exactly all they do there, he tells you, that when the Moon is obscured by the Shadow of the Earth, they no longer hear the heavenly Musick, but howl like so many Souls in Purgatory ; so that the Moon taking pity of 'em, makes all the haste she can to get into the Light again. Methinks then, *says she*, we should now and then see some of the blessed Souls arrive here from the Moon ; for certainly they are sent to us. I confess indeed, *said I*, it would be very pleasant to see different Worlds ; such a Voyage, tho but in Imagination, is very delightful ; what would it be in Effect ? It would be much better certainly than to go to *Japan*, which at best, is but crawling from one end of the World to t'other, and after all to see nothing but Men. Well then, *says she*, let us travel over the Planets as fast as we can ; what should hinder us ? Let us place our selves at all the different Prospects, and from thence consider the Universe. But first, have we any

any thing more to see in the Moon, if w
I believe not, *I reply'd*; at least, you dies
have seen all I can shew you. Com- wer
ing out of the Moon, towards the Sun, shou
we see *Venus*, which puts me again in ccep
mind of Greenwich. *Venus* turns upon say
her self, and round the Sun, as well as the
the Moon; they likewise discover by I fin
their Telescopes, that *Venus*, like the cer
Moon, (if I may speak after the sam goo
manner) is sometimes new, sometimes you
full, and sometimes in the Wain, accord since
ing to the divers Situations she is in, in now
respect of the Earth.

The Moon, to all appearance, is inha is a
bited; why should not *Venus* be so too. Phil
You are so full of your Why's and thing
your Wherefore's, *said she*, interrupting take
me, that I fancy you are sending Colou have
nies to all the Planets. You may be Mus
certain, so I will, *I reply'd*; for I see no the
reason to the contrary: We find that all the
the Planets are of the same nature, a hill ;
obscure Bodies, which receive no Light very
but from the Sun, and then send it to do y
one another: their Motions are the same say
so that hitherto they are alike; and yet Ther
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if we are to believe that these vast Bodies are not inhabited, I think they were made but to little purpose: why should Nature be so partial, as to except only the Earth? But let who will say the contrary, I must believe the Planets are peopled as well as the Earth. I find, *says the Countess* with some Concern, a Philosopher will never make a good Martyr, you can so quickly shift your Opinion; 'twas not many Minutes since the Moon was a perfect Desart; now the rest of the Planets are inhabited. Why truly, Madam, *said I*, there is a time for all things; and your true Philosopher believes any thing, or no thing, as the Maggot bites. Had you taken me in the sceptical vein, I would have as soon granted a Nation in a Mustard-Ball, as a living Creature in the Moon: but the Tide is turn'd, and all the Planets are peopled like an Ant-e, a hill; yet, Raillery apart, this is not so very improbable as you think it: for it to do you believe we discover (as I may say) all the Inhabitants of the Earth? There be as many kinds of invisible as visible

visible Creatures. We see from the Elephant to the very Hand-worm, beyond which our Sight fails us; and yet, counting from that minute Creature, there are an Infinity of lesser Animals, which were they perceptible, would be as little in comparison with a Mite, as the Mite is of an Ox. How lately have our Virtuoso's found out the Pepper-Worms, which in the least drop of Water appear like so many Dolphins, sporting in the Ocean! nay, they tell you that the Sharpness of Vinegar consists in the Fierceness of the little Animals that bite you by the Tongue; not to name the Blue on Plumbs, and twenty Experiments of the like nature.

Nay, to shew you that they can see as far into a Millstone as *Descartes* himself, they have discover'd that several even of the most solid Bodies, are nothing but an immense Swarm of imperceptible Animals. Do but consider this little Leaf: why, it is a great World, of mere, a vast extent; what Mountains, what Abysses are there in it? the Insects of one side know no more of their Fellow-Creatures

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ures on t'other side, than you and I can
tell what they are now doing at the An-
tropodes: is it not reason then that a great
Planet should be inhabited? In the hard-
Stones, for example, in Marble there
are an Infinity of Worms, which fill up
the Vacuums, and feed upon the Sub-
stance of the Stone. Fancy then Millions
of living Creatures to subsist many Years
upon a Grain of Sand; so that were the
Moon but one continued Rock, she
should be gnaw'd by these invisible Mites
(as if she were a green Cheese) rather
than not be inhabited. In short, every
thing is animated, and the Stones upon
the *Plain* are as much alive as a
Hive of Bees. Imagine then those Ani-
mals which are yet undiscovered, and
add them and those which are but lately
discover'd, to those we have always
seen, you will find the Earth swarms
with Inhabitants. Why then should
Nature, which is fruitful to an excess
here, be so very barren in the rest of
the Planets? I must own, *said the Coun-*
ress, you have convinc'd my Reason, but
you have confounded my Fancy with
such

such Variety, that I cannot imagine how Nature, which hates Repetitions, should produce so many different kinds. There is no need of Fancy, *reply'd I*; do but trust your Eyes, and you will easily perceive how Nature diversifies in these several Worlds.

All human Faces in general are of the same Model, and yet the *Europeans* and the *Africans* have two particular Molds; nay, commonly every Family have a different Form. What Secret then has Nature to shew so much Variety in a single Face? Our World, in respect of the Universe, is but a little Family: whose Faces have some Resemblance; in another place there is another Family, whose Faces have a different Air and Fashion. The Difference too increaseth with the Distance; for whosoever should see an Inhabitant of the Moon, and an Inhabitant of the Earth, would soon perceive they were nearer Neighbours than one of the Earth, and one of *Saturn*: here, for example, we have the use of their Voice; in another World they speak by Signs; and at a greater distance they

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do not speak at all. Here our Reason form'd by Experience ; in the next World, Experience contributes little towards it ; and in the next to that, old Men know no more than Children. Here we are troubled more with what is to come, than with what is past ; further off they are not concern'd with either, which, by the way, I think, is much the better. Here 'tis thought we want a sixth Sense, which would teach us many things of which we are now ignorant : this sixth Sense is apparently in another World, where they want one of the five which we enjoy. Nay, perhaps there is a much greater Number of Senses ; but in the Partition we have made of 'em with the Inhabitants of the other Planets, there are but five fallen to our share, with which we are well contented, for want of being acquainted with the rest. Our Sciences have Bounds, which the Wit of Man could never pass ; there is a Point where they fail us on a sudden, the rest is reserv'd for other Worlds, where somewhat which we know, is unknown to them.

them. This Planet enjoys the Pleasure of Love, but lies desolate in several places by the Fury of War: in another Planet they enjoy a perpetual Peace, yet in the midst of that Peace, know nothing of Love, and Time lies on their hands. In a word, that which Nature practises here in little, in distribution her Gifts among Mankind, she does a large in other Worlds, where she makes use of that admirable Secret she hath to diversify all things, and at the same time makes 'em equal, by compensating for the Inequality. This, I confess, is on the Borders of Nonsense; but a Man is never the less a Philosopher for being a little obscure, if not unintelligible.

But is it not time, Madam, to be serious; how will you dispose of all these Notions? Trouble not your self, ^{say} Woman, Fancy is a great Traveller: I already comprehend these several Worlds, and represent to my self their different Characters and Customs: Some of 'em what I assure you, are very extraordinary. I see at this moment a thousand different Figures, tho I cannot well describ ^{em}

Oh leave them, *I reply'd*, to your Dreams: They will represent them very faithfully.

The Fourth Evening.

Have been told of a Physician that makes his Patients dream as he pleases, by prescribing such a Specifick for their Supper, as works those Impressions he would have on the Fancy: of what use he may be to the modern Poets, a little leave to the Curious, and return to the Countess, who either did not dream at all, or nothing to the purpose; so that continuing our Voyage to the other World, we could only guess at their inhabitants. We were come to *Venus*, and I told her, that *Venus* certainly turn'd on it self, tho no body could tell in what time; and consequently were ignorant how long her Day lasted; but her Year was compos'd of eight Months, because 'tis in that time she turns round the

the Sun. And seeing *Venus* is forty times ^{their} ~~lesser~~ than the Earth, the Earth appears ^{of} ~~lesser~~ to them in *Venus* to be a Planet, forty times bigger than *Venus* appears to ^{us} ~~on~~ the Earth: and as the Moon is forty times ^{lesser} than the Earth, so she seems ^{to be} ~~to be~~ just of the same Magnitude, ^{as} ~~to be~~ the Inhabitants of *Venus*, as here *Venus* ^{ever} seems to us.

I see then, *says the Countess*, that the Earth is not to *Venus*, what *Venus* is to the Earth: I mean, that the Earth is too ^{big} to be the Mother of Love, or the Shepherd's Star to *Venus*; but the Moon, which appears to *Venus* of the same Bigness that *Venus* appears to us, is assigned ^{to be} the Mother of Love, and Shepherd's Star to *Venus*; for such Names are only proper for a little brisk airy Planet, bright and shining as the Goddess herself. Oh blessed Moon, how happy art thou to preside over the Amours of those gallant People, where all, they say, is soft and moving, and perfectly refin'd ^{from} the Dross of our Wits, who are fitter for a Bear-Garden than a Circle! How gross is their Courtship? how mean ^{their}

times their Raillery, without any Distinction
of Time, Place, or Person? they make
forty five (as they call it) but one way,
and the Form is the same at a Farce or
funeral. Be not so very severe, *I re-*
commend y'd; if some of our *Beaux* speak plain
English, some of your *Belles* like them
ever the worse for it. The Art of Love
as much improv'd as the Art of War:
The Generals of this Age take a Town
in two Days, which in the last held out
many Years; and the Roses, Lillies,
Pearls, and Rubies (a whining Lover's
Moan of Artillery) are grown as useless
as Bows and Arrows. Tho after all, *I*
must own they have another Standard
in the Planet *Venus*; there *Clelia* and
Parthenissa is below the Language of
Grooms and Chamber-maids, and every
Porter and Carman a perfect Sir Court-
ly and: but then consider the Difference of
those Climates; *Venus* is much nearer than the
Earth is to the Sun, from whence she
receives a more vigorous and active In-
fluence.

I find, says the Countess, it is easy
enough to guess at the Inhabitants of
Venus;

Venus; they resemble what I have read of the *Moors of Granada*, who were little black People, scorched with the Sun, witty, full of Fire, very amorous, much inclin'd to Musick and Poetry, and ever inventing Masques and Turnaments in honour of their Mistresses. Pardon me, Madam, *said I*; you are little acquainted with the Planet. *Granada*, in all its Glory, was a perfect *Greenland* (as it is) ; and your gallant *Moors*, in comparison with that People, were as stupid as so many *Laplanders*.

But what do you think then of the inhabitants of *Mercury*? They are yet a nearer to the Sun, and are so full of the Fire, that they are absolutely mad; I fancy they have no Memory at all, like most of the Negroes, that they make no serious Reflexions; and what they do is by sudden starts, and perfect hap-hazard. In a short, *Mercury* is the Bedlam of the Universe; the Sun appears to them much greater than it does to us, because they are much nearer to it than we: it sends them so vast and strong a Light, that the most glorious Day here would

read no more with them than a declining
ere Twilight. I know not if they can
the distinguish Objects; but the Heat to
rous which they are accustomed, is so ex-
, and lessive, that they would be starv'd with
ment Cold in the torrid Zone. Their Year is
rdo but three Months; but we know not the
e a exact length of their Day, because Mer-
a, inury is so little, and so near the Sun: it
ed to us (as it were) lost in his Rays, and is
mpa very hardly discover'd by the Astrono-
oida bers; so that they cannot observe how
it moves on its Center; but because it is
' the little, fancy it compleats its Motion
e year in a little time: so that by consequence
ll of the Day there is very short, and the Sun
d; appears to them like a vast fiery Furnace
like at a little distance, whose Motion is pro-
ke negligously swift and rapid; and during
r such their Night, *Venus* and the Earth (which
It must appear considerably big) give light
the U to them. As for the other Planets which
much are beyond the Earth, towards the Fir-
they ment, they appear less to them in
send Mercury, than they do to us here, and
that they receive but little Light from them,
d be perhaps none at all: the fixed Stars like-
wise

wise seem less to them, and some of 'em
totally disappear, which, were I there,
should esteem a very great loss.

What signifies the loss of a few fixed
Stars, *says the Countess?* I pity them for
the excessive Heat they endure: let us
give them some Relief, and send *Mercury*
a few of the refreshing Showers they
have sometimes four Months together in
the hottest Countries, during their greatest
extremity. Your Fancy is good, my
Madam, *I reply'd*; but we will relieve 'em
another way. In *China* there are Countries
which are extremely hot by their
Situation; yet in *July* and *August* are
so cold, that the Rivers are frozen. The
Reason is, they are full of *Salt-Petre*,
which being exhal'd in great abundance
by the excessive Heat of the Sun, makes
a perfect Winter at Midsummer. We
will fill the little Planets with *Salt-Petre*,
and let the Sun shine as hot as he
pleaseth. And yet after all, who know
but the Inhabitants of *Mercury* may have
no occasion either for Rain or *Salt-Petre*? If it is a certain Truth, that Nature
never gives life to any Creature, but

when

where that Creature may live; then thro Custom and Ignorance of a better Life, those People may live happily.

After *Mercury* comes the Sun; but there is no possibility of peopling it, nor no room left for a Wherefore. By the Earth which is inhabited, we judge that other Bodies of the same nature may be likewise inhabited: But the Sun is a Body not like the Earth, or any of the Planets; the Sun is the Source or Fountain of Light; which, tho it is sent from one Planet to another, and receives several Alterations by the way, yet all originally proceeds from the Sun: he draws from himself that precious Substance which he emits from all sides, and which reflects when it meets with a solid Body,

and spreads from one Planet to another. Salt whose long and vast Trains of Light which cross, strike thro, and intermingle in a thousand different Fashions, and make (if I may so say) the richest Tissues in the World. The Sun likewise is placed in the Centre, from whence, with most convenience, he may equally distribute,

and animate by his Heat. It is then a particular Body, but what sort of Body, has often puzzled better Heads than mine. It was thought formerly a Body of pure Fire; and that Opinion passed current till the beginning of this Age: when they perceiv'd several Spots on its Surface. A little after they had discovered new Planets, (of which hereafter) which some said were those Spots; for those Planets moving round the Sun, when they turn'd their dark half to us, must necessarily hide part of it: and had not the Learned, with these pretended Planets, made their court before to most of the Princes in *Europe*, giving the Name of this Prince to one, and of that Prince to another Planet, I believe they would have quarrell'd who should be Master of these Spots, that they might have named them as they pleas'd.

'Twas but t'other day, *says the Countess*, you were describing the Moon, and call'd several Places by the Names of the most famous Astronomers. I was pleas'd with the Fancy: For since the Princes have seiz'd on the Earth, 'tis then

en as the Philosophers (who are as proud
ody, as the best of 'em) should reserve the
than Heavens for themselves without any
ody Competitors. Oh! trouble not your
assed self, said I, the Philosophers make the
age best advantage of their Territories; and
n its if they part with the least Star, 'tis on
isco-very good Terms: let me tell you an
fter, Acre of Land in *England* is worth ten
; for thousand in the Moon; but the Spots on
Sun the Sun are fallen to nothing; the Ac-
to usions of *Pensylvania* are not half so low:
d ha'tis now discover'd that they are not
ended Planets, but Clouds, Streams or Dross,
m which rise upon the Sun, sometimes
Nam in great quantity, sometimes in less;
Princ sometimes they are dark, sometimes
would clear; sometimes they continue a great
ster while, and sometimes they disappear as
nam long. It seems the Sun is a liquid
Matter; some think of melted Gold
Count which boils over, as it were, continually,
n, and by the Force of its Motion calls
nes the Scum or Dross on its Surface, where
I w is consum'd, and others arise. Im-
agine then what strange Bodies these are,
'tis when some of them are as big as the
F 2 Earth;

Earth. What a vast quantity must there be of this melted Gold, and what must be the Extent of this great Sea of Light and Fire which they call the Sun? Others say, the Sun appears thro their Telescopes, which are the Astronomers Spectacles, full of Mountains which vomit Fire continually, and are joined together like Millions of *Etna's*. Yet there are those that say these burning Mountains are pure Vision, caus'd by a fault in the Spectacles; but what shall we trust, if we must distrust our Telescopes, to which we owe the knowledge of so many new Objects? But let the Sun be what it will, it cannot be a proper for Habitation; and what pit 'tis not, for how pleasant would it be! You might then be at the Centre of the Universe, where you would see all the Planets turn regularly about you; but let us now we know nothing but extravagancies, because we do not stand in the proper Place. There is but one place round the World, where the Study or Knowledge of the Stars is easily obtain'd, and what pity 'tis there is no body there to

You forget your self sure, *says she*; were you in the Sun you would see nothing, neither Planets nor fixed Stars: doth not the Sun efface all? So that could there be any Inhabitants there, they might justly think themselves the only People in Nature.

I own, *said I*, my Mistake: I was thinking of the Situation of the Sun, and not of the effect of its Light: I thank you for your Correction; but must take the Boldness to tell you, that you are in an Error as well as my self: for were there Inhabitants in the Sun, they would not see at all; either they could not bear the Strength of its Light, or for want of a due distance, they could not receive it; so that things well consider'd, all the People there must be stark blind, which is another reason why the Sun cannot be inhabited: But let us pursue our Voyage. We are now arriv'd at the Centre, which is always the Bottom or lowest Place of what is round: if we go on, we must ascend: we shall find *Mercury, Venus, the Earth, the Moon*, all the Planets we have already visited; the next is *Mars*: *Mars* hath

nothing curious that I know of; his Day is not quite an hour longer than ours, but his Year is twice as much as our Year: he is a little less than the Earth; and the Sun seems not altogether so large and so bright to him, as it appears to us. But let us leave *Mars*, he is not worth our stay. But what a pretty thing is *Jupiter*, with his four Moons, or Yeomen of the Guard! they are four little Planets that turn round him, as our Moon turns round us. But why, *says she*, interrupting me, must there be Planets to turn round other Planets, that are no better than themselves? I should think it would be more regular and uniform, that all the Planets, little and great, without any distinction, should have one and the same Motion round the Sun.

Ah, Madam, *said I*, if you knew what were *Descartes*'s Whirlpools or Vortexes (whose Name is terrible, but their Idea pleasant) you would not talk as you do. Must my Head (*says she*, similing) turn round to comprehend 'em, or must I become a perfect Fool to understand

derstand the Mysteries of Philosophy? Well, let the World say what it will, go on with your Whirlpools. I will *aid I*; and you shall see the Whirlpools are worthy of these Transports. That then which we call a Whirlpool or Vortex, is a Mass of Matter, whose Parts are separated or detach'd one from another, yet have all one uniform Motion; and at the same time every one is allow'd, or has a particular Motion of its own, provided it follows the general Motion. Thus a Vortex of Wind, or Whirlwind, is an Infinity of little Particles of Air, which turn round all together, and involve whatever they meet with. You know the Planets are borne up by the Celestial Matter, which is prodigiously subtle and active; so that this great Mass, or Ocean of Celestial Matter, which flows as far as from the Sun to the fixed Stars, turns round, and bears the Planets along with it, making them all turn after the same manner round the Sun, who possesses the Centre, but in a longer or a shorter time, according as they are farther or nearer in distance

to it. There is nothing, to the very Sun, which does not turn, but he turns on himself, because he is just in the middle of this Celestial Matter: And you must know by the way, that were the Earth in his place, it must turn on it self, as the Sun does. This is the great Vortex, of which the Sun is Lord; yet at the same time, the Planets make little particular Vortexes, in imitation of that of the Sun; each of them in turning round the Sun, doth at the same time turn round itself, and makes a certain Quantity of Celestial Matter turn round it likewise, which is always prepar'd to follow the Motion the Planet gives it, provided it is not diverted from its general Motion: this then is the particular Vortex of the Planet, which pushes it as far as the Strength of its Motion reaches; and if by chance, a lesser Planet falls into the Vortex of a greater Planet, it is immediately borne away by the greater, and is indispensably forc'd to turn round it, tho at the same time the great Planet, the little Planet, and the Vortex which encloses 'em, all turn round

round the Sun. 'Twas thus at the beginning of the World, when we made the Moon follow us, because she was within the reach of our Vortex, and therefore wholly at our dispose. *Jupiter* was stronger, or more fortunate than we; he had four little Planets in his Neighbourhood, and he brought 'em all four under his Subjection; and no doubt we, tho a principal Planet, had had the same Fate, had we been within the Sphere of his Activity: he is ninety times bigger than the Earth, and would certainly have swallow'd us into his Vortex; we had then been no more than a Moon in his Family, when now we have one to wait on us: so that you see the advantage of Situation, decides often all our good Fortune.

But pray, *says she*, who can assure us we shall still continue as we do now? If we should be such Fools as to go near *Jupiter*, or he so ambitious as to approach us, what will become of us? For if (as you say) the Celestial Matter is continually under this great Motion, it must needs agitate the Planets irregu-

larly ; sometimes drive 'em together, and sometimes separate 'em. Luck is all, said I ; we may win as well as lose ; and who knows but we should bring *Mercury* and *Venus* under our Government ? they are little Planets, and cannot resist us. But in this Particular, Madam, we need not hope or fear ; the Planets keep within their own Bounds, and are oblig'd (as formerly the Kings of *China* were) not to undertake new Conquests. Have you not seen when you put Water and Oil together, the Oil swims a-top, and if to these two Liquors, you add very light Liquor, the Oil bears it up, and it will not sink to the Water ; but put an heavier Liquor, of a just weight, and it will pass through the Oil, which is too weak to sustain it, and sink till it comes to the Water, which is strong enough to bear it up : So that in this Liquor, compos'd of two Liquors, which do not mingle, two Bodies of an unequal weight will naturally assume two different places ; the one will never ascend, the other will never descend. Fancy then that the Celestial Matter which they

which fills this great Vortex, hath several resting-places, one by another, whose weight are different, like that of Oil, Water, and other Liquors ; the Planets too are of a different weight, and consequently every Planet settles in that place which has a just strength to sustain and keep it equilibrate : so you see 'tis impossible it should ever go beyond.

Would to God, *says the Countess*, our World were as well regulated, and every one among us knew their proper place. I am now in no fear of being over-run by *Jupiter* ; and since he lets us alone in our Vortex, with our Moon, I do not envy him the four which he hath. Did you envy him, *I reply'd*, you would do him wrong, for he has no more than what he has occasion for ; at the distance he is from the Sun, his Moons receive and send him but a very weak Light : it is true, that as he turns upon himself in ten Hours, his Nights, by consequence, are but five Hours long ; so one would think there is no great occasion for four Moons : but there are other things to be considered. Here under the Poles, which they have six Months Day, and six Months.

Months Night, because the Poles are the two Extremities of the Earth, the farthest remov'd from those Places where the Sun is over 'em in a perpendicular Line. The Moon seems to keep almost the same course as the Sun ; and if the Inhabitants of the Pole see the Sun, during one half of his course of a Year, and during the other half, do not see him at all ; they see the Moon likewise during one half of her course of a Month, that is, she appears to 'em fifteen Days ; but they do not see her during the other half. *Jupiter's* Year is as much as twelve of ours, so that there must be two opposite Extremities in that Planet, where their Night and their Day are six Years each. A Night six Years long, is a little disconsolate, and 'tis for that reason, I suppose, they have four Moons ; that which (in regard to as *Jupiter*) is uppermost, finisheth its course about him in seventeen Days, the second in seven, the third three days and a half, and the fourth in two and forty Hours : and tho' they are so unfortunate as to have six Years Night, yet their course being exactly divided into halves, *I* they

are they never pass above one and twenty
the Hours, wherein they do not see at least
aces the last Moon, which is a great Comfort
pen- in so tedious a Darknes: so that be where
keep you will, these four Moons are sometimes
and the prettiest Sight imaginable; sometimes
e the they rise all four together, and then se-
of a parate according to the Inequality of
o not their course; sometimes they are all in
like their Meridian, rang'd one above ano-
of a ther; sometimes you see 'em at equal
steen Distances on the Horizon; sometimes
uring when two rise, the other two go down.
is a Oh! how I should love to see this plea-
ther Sport of Eclipses! for there is not
n than a day passes, but they eclipse the Sun, or
their one another; and they are so accustom'd
ht sin to this Diversion in *Jupiter*, that the late
, and Duke of B — m in his *Rehearsal*, brought
have the Dance of Eclipses from that Planet,
ard to as now most of our modish Dances
cours come out of *France*.

second Well, says the Countess, I hope you
nd at will people these four Moons, tho you
forty say they are but little secondary Pla-
fortunes, appointed to give light to another
t the Planet during its Night. Do not doubt
alves it, I reply'd; these Planets are not a jot
they the

the worse to be inhabited, for being forc'd to turn round another Planet of greater Consequence. I would have then, *says she*, the People of these four Moons, to be so many Colonies under *Jupiter's* Government; they should receive their Laws and Customs from him. Would it not be convenient too, *said I*, that they should send Deputies with Addresses to him? for he hath certainly a more absolute Command over his Moon, than we have over ours; tho his Power, after all, is but imaginary, and consists chiefly in making them afraid: for that Moon which is nearest to him, sees that he is three hundred and sixty times bigger than our Moon appears to us; for in truth, he is so much bigger than she: he is also much nearer to them than our Moon is to us, the which makes him appear the greater, so that this formidable Planet hangs continually over their Heads, at a very little distance. And if the *Gauls* were afraid heretofore that the Heavens would fall on 'em, I think the Inhabitants of that Moon may well be apprehensive that *Jupiter* will

at some time or other overwhelm them. They are, *says she*, I fancy, possessed with that fear, because they are not concern'd at Eclipses. Every one has their due Folly: we are afraid of an Eclipse, and they, that *Jupiter* will fall on their Heads. It is very true, *said I*; the Inventer of the third System, I told you t'other night, the famous *Tycho Brahe*, one of the greatest Astronomers that ever was, did not apprehend the least danger from an Eclipse, when every body else was under the greatest Confusion; yet this great Man had as an unaccountable a fear, did a Hare cross him, or were the first Person he met in a Morning an old Woman, home presently went *Tycho Brahe*, he shut himself up for that day, and would not meddle with the least Business.

Let us go on with ours, tho', *said the Countess*, and leave *Tycho Brahe* to defend his Superstition. Pray tell me, if the Earth be so little in comparison of *Jupiter*, whether his Inhabitants do discover us? Indeed, *said I*, I believe not; for if we appear to him ninety times less

less than he appears to us, judge you if there be any possibility. Yet this we may reasonably conjecture, that there are Astronomers in *Jupiter*, that after they have made the most curious Telescopes, and taken the clearest Night for their Observations, they may have discover'd a little Planet in the Heavens, which they never saw before. If they publish their Discovery, most People know not what they mean, or laugh at them for Fools: nay, the Philosophers themselves will not believe 'em, for fear of destroying their own Opinions; yet some few may be a little curious; they continue their Observations, discover the little Planet again, and are now assur'd it is no Vision; then they conclude it hath a Motion round the Sun, which it compleats in a Year: and at last (thanks to the Learned) they know in *Jupiter* our Earth is a World, every body runs to see it at the end of the Telescope, tho' 'tis so little, 'tis hardly discover'd.

It must be pleasant, *says he*, to see the Astronomers of both Planets leveling

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ing their Tubes at one another, like two Files of Musqueteers, and mutually asking, what World is that? What People inhabit it? Not so fast neither, I reply'd; for tho they may from *Jupiter* discover our Earth, yet they may not know us; that is, they may not have the least Suspicion it is inhabited: and should any one there chance to have such a Fancy, he might be sufficiently ridicul'd, if not prosecuted for it. For my part, I believe they have work enough to make Discoveries on their own planet, not to trouble their Heads with ours: And had Sir *Francis Drake* and *Columbus* been in *Jupiter*, they might have had good Employments: why, I warrant you they have not yet discover'd the hundredth part of their Planet. But if *Mercury* is so little, they are all, as it were, near Neighbours; and 'tis but taking a walk, to go round that Planet. But if we do not appear to 'em in *Jupiter*, they cannot certainly discover *Venus* and *Mercury*, which are much less than the Earth, and at a greater distance; but instead of it, they see *Mars*, their own four Moons,

Moons, and *Saturn* with his: This, *Saturn* think, is work enough for their *Astro* *nomers*; and *Nature* hath been so kind *Ring* to conceal from them the rest of the *U* *he* *niverse*. Do you think it a Favour then *say* *she*? Yes, certainly, *said I*; for *there* are sixteen Planets in this *grea* *wher* *Vortex*. *Nature* saves us the trouble *all*, *studying* the Motions of them all, and *I* *shews* us but seven, which, *I* *think*, is *surpri* *very* obliging, tho' we know not how *reat* to value the Kindness; for we have *not* *think* cover'd the other nine which were *hid* *the* *N* from us, and so render the *Science* *hat* *Astronomy* much more difficult *than* *not* *a* *Nature* design'd it.

If there are sixteen Planets, *said* *she* *arth* *Saturn* must have five Moons. 'Tis very *upit* *true*, *said I*; and two of these five *ar* *orth* but lately discover'd: but there is some *enus* *what* *that* is more remarkable; since *he* *eady* *Year* is thirty of ours, there are *conf* *as* *sh* *quently* in him some Countries, *when* *man* *their* *Night* is fifteen Years long; *and* *not* *M* *what* *can* *you* *imagine* *Nature* *hath* *in* *one*, *vented* to give Light, during so dreadful *arth* *Night*? Why, *she* *hath* *not* *only* *give* *id I* *Saturn*

his, ~~at~~ *Saturn* five Moons, but she hath encompass'd him round with a great Circle or ~~king~~ Ring, the which being plac'd beyond the ~~U~~ the reach of the Shadow which the Body of that Planet casts, reflects the Light of the Sun continually on those Places where they cannot see the Sun at all.

I protest, *says the Countess*, this is very surprizing; and yet all is contriv'd in such a great Order, that it is impossible not to think but Nature took time to consider the Necessities of all animate Beings, and that the disposing of these Moons was not a work of Chance; for they are only divided among those Planets which are ~~at~~ the furthest distant from the Sun, the Earth, ~~and~~ *Jupiter, Saturn*. Indeed it was not worth while to give any to *Mercury* or *Venus*; they have too much Light already: and they account their Nights (only as short as they are) a greater Blessing than their Days. But pray, why was *Mars* a Moon too? it seems he has ~~one~~ in one, tho' he is much further than the Earth from the Sun. It is very true, give *id I*; no doubt but he hath other helps, tho'

tho we don't know 'em : You have seen the *Phosphorus*, both liquid and dry, how it receives and imbibes the Rays of the Sun, and what a great Light it will cast in a dark Place. Perhaps *Mars* hath many great high Rocks, which are so many natural *Phosphorus's*, which in the Day take in a certain Provision of Light, and return it again at Night. What think you, Madam, is it not very pleasant when the Sun is down, to see those lighted Rocks, like so many Illuminations at a Birth-day Night ? Beside there is a kind of Bird in *America* that yields such a Light, you may read by in the darkest Night : and who know but *Mars* may have great Flocks of the Birds, that as soon as it is Night, disperse themselves into all Parts, and spread from their Wings another Day ?

I am not at all contented, says Sir, with your Rocks or your Birds : 'tis pretty fancy indeed ; but 'tis a sign that there should be Moons in *Mars*, since Nature hath given so many to *Saturn* and *Jupiter* : and if all the other Worlds that are distant from the Sun have Moons, have

why should *Mars* only be excepted? Ah, Madam, *said I*, when you are a little more dipt in Philosophy, you will find Exceptions in the very best Systems. There are always some things that agree extreme well; but then there are others that do not accord at all: those you must leave as you found 'em, if ever you intend to make an end. We will do so by *Mars*, if you please, and say no more of him, but return to *Saturn*. What do you think of his great Ring, in the form of a Semicircle, that reaches from one end of the Horizon to the other, which reflecting the Light of the Sun, performs the Office of a continual Moon? And must we not inhabit this Ring too, *says I*? I confess, *said I*, in the Humour I am in, I could almost send Colonies every where; and yet I can't well plant any there, it seems so irregular a Habitation: but for the five little Moons, they cannot chuse but be inhabited; tho some think this Ring is a Circle of Moons, which follows close to one another, and have an equal Motion, and that the five little Moons fell out of this Circle: how

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many Worlds are there then in the Vortex of *Saturn*? But let it be how it will, the People in *Saturn* live very miserably. 'Tis true, this Ring gives Light to 'em, but it must be a very poor one, when the Sun seems to 'em but a little pale Star, whose Light and Heat cannot but be very weak at so great a distance: they say *Greenland* is a perfect *Bagnio*, in comparison of that Planet, and that they would expire with Heat in our coldest Countries.

You give me, *says she*, such an Idea of *Saturn*, that makes me shake with Cold, and that of *Mercury* puts me into a Fever. It cannot be otherwise, *I reply'd*, for the two Worlds, which are the Extremities of this great Vortex, must be opposite in all things. They must then *says she*, be very wise in *Saturn*; for you told me they were all Fools in *Mercury*. If they are not wise, *said I*; yet they have all the appearances of being very phlegmatick. They are People that know not what it is to laugh; they take a Day's time to answer the least Question you can ask them, and an

so very grave, that were Cato living among them, they would think him a *Merry-Andrew*.

It is odd to consider, *says she*, that the inhabitants of *Mercury* are all Life, and the Inhabitants of *Saturn* quite contrary; but among us, some are brisk, and some are dull: It is, I suppose, because our Earth is plac'd in the middle of the other Worlds, and so we participate of both Extremes, there is no fix'd or determin'd Character; some are made like the Inhabitants of *Mercury*, some like those of *Saturn*; we are a Mixture of the several kinds that are found in the rest of the Planets. Why, *said I*, do you not approve of the Idea? Methinks it is pleasant to be compos'd of such a fantastical Assembly, that one would think we were collected out of different Worlds. We need not travel, when we see the other Worlds in Epitome at home.

I am sure, *says the Countess*, we have that one great Convenience in the Situation of our World; it is not so hot as *Mercu-*
le or *Venus*, nor so cold as *Jupiter* or
Saturn:

Saturn: and our Country is so justly plac'd, that we have no Excess either of Heat or Cold. I have heard of a Philosopher, who gave thanks to Nature that he was born a Man, and not a Beast a *Greek*, and not a *Barbarian*: and for my part, I render thanks, that I am seated in the most temperate Planet of the Universe, and in one of the most temperate Regions of that Planet. You have more reason, *said I*, to give thanks that you are young, and not old; that you are young and handsome, and not young and ugly; that you are young handsome, and an *English* Woman, and not young, handsome, and a *Spaniard* or an *Italian*: these are other-guest Subjects for your thanks, than the Situation of your Vortex, or the Temperature of your Country.

Pray Sir, *says she*, let me give thanks for all things, to the very Vortex in which I am planted. Our Proportion of Happiness is so very small, that we should lose none, but improve continually what we have, and be grateful for every thing, tho' ever so common.

or inconsiderable. If nothing but exquisite Pleasure will serve us, we must wait a long time, and be sure to pay too dear for it at last. I wish, *said I*, that Philosophy was the Pleasure you propose, that when you think of Vortexes, you would not forget an humble Servant of your Ladyship's. I esteem it a Pleasure, *says she*, while it diverts innocently, but no longer. I will engage for it till to-morrow, *I reply'd*; for the fixed Stars are beyond what you have yet seen.



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The Fifth Evening.

THE Countess was very impatient to know what would become of the fixed Stars: are they inhabited, *says she*, as the Planets are, or are they not inhabited? What shall we do with 'em? You may soon guess, *said I*; the fixed Stars can't be less distant from the Earth than fifty Millions of Leagues; nay, if you anger an Astronomer, he will set you further. The Distance from the Sun to the farthest Planet is nothing in comparison of the Distance from the Sun, or from the Earth, to the fixed Stars; it is almost beyond Arithmetick. *said she*. You see their Light is bright and shining; and did they receive it from the Sun, it must needs be very weak after a Passage of fifty Millions of Leagues. Then judge how much it is wasted by Reflection; for it comes back again to the Sun again.

far to us: so that forwards and backwards, here are an hundred Millions of Leagues for it to pass; and it is impossible it should be so clear and strong as the Light of a fixed Star, which cannot but proceed from itself: so that, in a word, all the fixed Stars are so many Suns.

I perceive, *says the Countess*, where you would carry me: you are going to tell me, that if the fixed Stars are so many Suns, and our Suns the Center of a Vortex that turns round him; why may not every fixed Star be the Center of a Vortex, that turns round the fixed Star? Our Sun enlightens the Planets: why may not every fixed Star have Planets to which they give Light? You have said it, *I reply'd*, and I will not contradict you.

You have made the Universe so large, that I know not where I am, or what will become of me: What, is it all to be divided into Heaps confusedly, one among another? Is every Star the Center of a Vortex, as big as ours? Is that vast Space which comprehends our Sun and Planets but an inconsiderable

part of the Universe? And are there as many such Spaces, as there are fixed Stars? I protest it is dreadful. Dreadful, Madam, *said I*; I think it very pleasant: When the Heavens were a little blue Arch, stuck with Stars, methought the Universe was too strait and close; I was almost stifled for want of Air: but now it is enlarr'd in Height and Breadth and a thousand and a thousand Vortexes taken in, I begin to breathe with more freedom, and think the Universe to be incomparably more magnificent than it was before. Nature hath spar'd no cost even to profusenes; and nothing can be so glorious, as to see such a prodigious number of Vortexes, whose several Centres are possess'd by a particular Sun which makes the very Planets turn round it. The Inhabitants of a Planet one of these innumerable Vortexes, see on all sides these luminous Centers of the Vortex, with which they are encompass'd: but perhaps they do not see the Planets, who receiving but a faint Light from their Sun, cannot send it beyond their own World.

You present me with a kind of Perspective of so vast a length, that no Eye can reach to the end of it. I plainly see the Inhabitants of the Earth, and you have made me discover those that dwell in the Moon, and in other Planets of our Vortex; but these indeed, I do not see so clearly as those of the Earth: after these, we come to the Inhabitants of the Planets which are in the other Vortexes, but they are sunk into so great a depth, that tho' I do all I can to see them, yet I must confess I can hardly perceive 'em. By the Expression you use in speaking of 'em, they seem to be almost annihilated; you ought then to call 'em the Inhabitants of one of those innumerable Vortexes: We ourselves, for whom the same Expression serves, must confess, that we scarce know where we are, in the midst of so many Worlds; for my own part, I begin to see the Earth so fearfully little, that I believe from henceforth I shall never be concern'd at all for any thing. That we so eagerly desire to make ourselves great, that we are always designing, always troubling and harassing ourselves,

is certainly because we are ignorant what these Vortexes are: but now I hope my new Lights will in part justify my Laziness; and when any one reproaches me with my Carelessness, I will answer, *Ab did you but know what the fix'd Stars are!* It was not fit, *said I*, that *Alexander* should know what they were; for a certain Author who maintains that the Moon is inhabited, very gravely tells us, that *Aristotle* (from whom no Truth could be long conceal'd) must necessarily be of an Opinion, back'd with so much Reason; but yet he could never acquaint *Alexander* with the Secret, fearing he might run mad with Despair, when he knew there was another World which he could not conquer. With much more reason then was this Mystery of Vortexes and fix'd Stars kept secret in *Alexander's* time: for tho they had been known in those days, yet a Man would have been a great Fool, to have said any thing of 'em to *Alexander*; it had been but an ill way of making his court to that ambitious Prince: for my part, I that know 'em, am not a little troubled to find my self

self not one jot the wiser for all the knowledge I have of 'em ; the most they can do, according to your way of reasoning, is but to cure People of their Ambition, and their unquiet restless Humour, which are Diseases I am not at all troubled with : I confess, I am guilty of so much Weakness, as to be in love with what is beautiful ; that's my Distemper, and I am confident, the Vortexes can never cure it. What if the other Worlds render ours so very little ? they cannot spoil fine Eyes, or a pretty Mouth ; their Value is still the same, in spite of all the Worlds that can possibly exist.

This Love, *reply'd the Countess*, smiling, is a strange thing ; let the World go how 'twill, 'tis never in danger ; there is no System can do it any harm. But tell me freely, is your System true ? Pray conceal nothing from me ; I will keep your Secret very faithfully ; it seems to have for its foundation, but a slight Probability ; which is, that if a fix'd Star be in itself a luminous Body, like the Sun, then by consequence, it must, as the Sun is, be the Center and

Soul of a World, and have its Planets turning round about it. But is there an absolute necessity it must be so? Madam, said I, since we are in the humour of mingling amorous Follies with our most serious Discourse, I must tell you, that in Love and the Mathematicks, People reason alike. Allow ever so little to a Lover, yet presently you must grant him more, nay more and more, which will at last go a great way. In like manner, grant but a Mathematician one little Principle, he immediately draws a Consequence from it, to which you must necessarily assent; and from this Consequence another, till he leads you so far (whether you will or no) that you have much ado to believe him. These two sorts of People, Lovers and Mathematicians, will always take more than you give 'em. You grant, that when two things are like one another in all those things that appear to you, it is possible they may be like one another in those things that are not visible, if you have not some good Reason to believe otherwise. Now this way of arguing have I made

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use of. The Moon, *say I*, is inhabited, because she is like the Earth ; and the other Planets are inhabited, because they are like the Moon : I find the fix'd Stars to be like our Sun, therefore I attribute to them what is proper to that. You are now gone too far to be able to retreat, therefore you must go forward with a good Grace. But, *says the Countess*, if you build upon this Resemblance or Likeness which is between our Sun and the fix'd Stars, then, to the People of another great Vortex, our Sun must appear no bigger than a small fix'd Star, and can be seen only when 'tis Night with them. Without doubt, Madam, *said I*, it must be so : Our Sun is much nearer to us, than the Suns of other Vortexes, and therefore its Light makes a much greater Impression on our Eyes, than theirs do. We see nothing but the Light of our own Sun ; and when we see that, it darkens and hinders us from seeing any other Light : But in another great Vortex, there is another Sun, which rules and governs, and in its turn extinguisheth the Light of our Sun, which is ne-

ver seen there but in the Night, with the rest of the other Suns, that is, the fix'd Stars: with them, our Sun is fastned to the great arched Roof of Heaven, where it makes a part of some Bear or Bull; for the Planets which turn round about it, (our Earth for example) as they are not seen at so vast a distance, so no body doth so much as dream of 'em. All the Suns then are Day-Suns in their own Vortexes, but Night-Suns in other Vortexes. In his own World or Sphere every Sun is single, and there is but one to be seen; but every where else, they serve only to make a number. May not the Worlds, *reply'd the Countess*, notwithstanding this great Resemblance between 'em, differ in a thousand other things? for tho they may be alike in one particular, they may differ infinitely in others.

It is certainly true, *said I*; but the difficulty is to know wherein they differ. One Vortex hath many Planets that turn round about its Sun; another Vortex hath but a few. In one Vortex, there are inferior or less Planets, which turn a

bout those that are greater ; in another perhaps there are no inferior Planets : Here, all the Planets are got round about their Sun, in form of a little Squadron ; beyond which is a great void Space, which reacheth to the neighbouring Vortexes : In another place, the Planets take their Course towards the outside of their Vortex, and leave the middle void. There may be Vortexes also quite void, without any Planets at all ; others may have their Sun not exactly in their Centre ; and that Sun may so move, as to carry its Planets along with it ; others may have Planets, which in regard of their Sun, ascend, and descend, according to the change of their Equilibration, which keeps them suspended. But I think I have said enough for a Man that was never out of his own Vortex.

It is not so much, *reply'd the Countess*, considering what a multitude of Worlds there are : what you have said is sufficient but for five or six, and from hence I see thousands.

What, Madam, would you say, if I should tell you, there are many more fix'd

fix'd Stars than those you see ? and that an infinite number are discover'd with Glasses, which never shew themselves to our Eyes. In only one Constellation, where it may be, we count twelve or fifteen, there are as many to be found as usually appear in the whole Hemisphere.

I submit, *says the Countess*, and beg your pardon ; you quite confound me with Worlds and Vortexes. I have yet more to tell you, Madam, *said I* : You see that whiteness in the Sky, which some call the *Milky-Way* ; can you imagine what that is ? 'Tis nothing but an infinity of small Stars, not to be seen by our Eyes, because they are so very little ; and they are sown so thick, one by another, that they seem to be one continu'd brightness. I wish you had a Glass, to see close this Ant-hill of Stars, and this Cluster of Worlds, if I may so call 'em : they are close together, in some sort, like the *Maldivian Islands*, Those twelve thousand Banks of Sand, separated by narrow Channels of the Sea, which a Man may leap as easily, as over a Ditch ; so near together are the Vortexes

texes of the Milky-Way, that the People in one World may talk, and shake Hands with those of another ; at least I believe the Birds of one World may easily fly into another ; and that Pigeons may be train'd up to carry Letters, as they do in the *Levant*. These little Worlds are excepted out of that general Rule, by which one Sun in his own Vortex, as soon as he appears, effaceth the Light of all other foreign Suns. If you were in one of these little Vortexes of the Milky-Way, your Sun would not be much nearer to you, and consequently would not make any much greater sensible Impression on your Eyes, than an hundred thousand other Suns of the neighbouring Vortexes. You would then see your Heaven shine bright with an infinite number of Fires, close to one another, and but a little distant from you ; so that tho' you should lose the Light of your own particular Sun, yet there would still remain visible Suns enough beside your own, to make your Night as light as Day, at least the difference would hardly be perceiv'd ; for the truth is, you would never have any Night

Night at all. The Inhabitants of these Worlds, accustom'd to perpetual Brightness, would be strangely astonish'd, if they should be told, that there are a miserable sort of People, who where they live, have very dark Nights, and when 'tis Day with them, they never see more than one Sun ; certainly they would think Nature had very little Kindness for us, and would tremble with Horror, to think what a sad Condition we are in.

I do not ask you, *said the Countess*, whether in those Worlds of the Milky-way, there be any Moons ; I see they would be of no use to those principal Planets which have no Night, and move in Spaces too strait and narrow to cumber themselves with the Baggage of inferior Planets : yet pray take notice, that by your liberal Multiplication of Worlds, you have started an Objection not easily answer'd. The Vortexes whose Suns we see, touch the Vortex in which we are ; and if it be true, that Vortexes are round, how then can so many Bowls or Globes all touch one single one ? I would

fair

fain imagine how this may be done, but cannot think which way.

You shew a great deal of Wit, Madam, *said I*, in raising this Doubt, and likewise in not being able to resolve it; for in itself the thing is extreme difficult, and in the manner you conceive it, no answer can be given to it; and he must be a Fool who goes about to find Answers to Objections which are unanswerable. If our Vortex had the form of a Dye, it would have six Squares or flat Faces, and would be far from being round; and upon every of these Squares might be plac'd a Vortex of the same Figure; but if instead of these six square Faces, it had twenty, fifty, or a thousand, then might a thousand Vortexes be plac'd upon it, one upon every flat: and you know very well, that the more flat Faces any Body hath on its outside, the nearer it approacheth to Roundness; just as a Diamond cut facet-wise on every side, if the Facets be very many and little, it will look as round as a Pearl of the same bigness. 'Tis in this manner that the Vortexes are round; they have an infinite

nite number of Facets on their outside, and every one of 'em hath upon it another Vortex : these Facets are not all equal and alike ; but here, some are greater, and there, some les : the least Facets of our Vortex, for example, answer to the Milky-Way, and sustain all those little Worlds. When two Vortexes are supported by the two next Flats on which they stand, if they leave beneath any void space between them, as it must often happen, Nature, who is an excellent Huswife, and suffers nothing to be useles, presently fills up this void Space with a little Vortex or two, perhaps with a thousand, which never incommode the others, and become one, two, or a thousand Worlds more ; so that there may be many more Worlds than our Vortex hath flat Faces to bear 'em. I will lay a good Wager, that tho these little Worlds were made only to be thrown into the Corners of the Universe, which otherwise would have been void and useles ; and tho they are unknown to other Worlds which they touch, yet they are well satisfy'd with

their

their being where they are. These are the little Worlds whose Suns are not to be discover'd but with a Telescope, and whose number is prodigious. To conclude, all these Vortexes are join'd to one another in so admirable a manner, that every one turns round about his Sun, without changing place ; every one hath such a turn as is most easy and agreeable to its own Situation ; they take hold of one another, like the Wheels of a Watch, and mutually help one another's Motion : and yet 'tis true, that they act contrary to one another. Every World, as some say, is like a foot-ball, made of a Bladder, cover'd with Leather, which sometimes swells of its own accord, and would extend itself, if it were not hinder'd. But this swelling World being press'd by the next to it, returns to its first Figure ; then swells again, and is again depress'd : and some affirm, that the reason why the fix'd Stars give a twinkling and trembling Light, and sometimes seem not to shine at all, is because their Vortexes perpetually push and press our Vortex,

tex, and ours again continually repulsetheir
theirs.

I am in love with these Fancies, / in Vort
the Countess ; I am pleas'd with the Vort
Foot-balls, which swell every momen
and sink again, and with these World
which are continually striving and push
ing one another : but above all, I a
pleas'd to see how this justly keeps u
the Trade of Light, which is certain
the only Correspondence that is betwee
them.

No, no, Madam, *said I* ; Light is no which
their sole Commerce ; the neighbourin they
Worlds sometimes send Visits to us, an They
that in a very magnificent and splende
manner : There come Comets to u
from thence, adorn'd with bright shin
ing Hair, venerable Beards, or Maj
tick Tails. These, *said the Countess*, a
Ambassadors, whose Visits may be we
spared, since they serve only to affrig
us. They scare only Children, *said* often
with their extraordinary Train ; but i
deed, the number of such Children
now-a-days very great. Comets are ne
thing but Planets, which belong to
neigh

neighbouring Vortex, they move towards the outside of it: but perhaps this Vortex being differently pres'd by those the Vortexes which encompass it, it is rounder above than it is below, and it is the lower part that is still towards us. These Planets which have begun to move in a Circle above, are not aware that below their Vortex will fail 'em, because it is as it were broken. Therefore to continue the circular Motion it is necessary that they enter into another Vortex, which we will suppose is ours, and that they cut through the outsides of it. They appear to us very high, and are much higher than *Saturn*; and according to our System, it is absolutely necessary they should be so high, for Reasons that signify nothing to our present Subject, and from *Saturn* downwards to the outsides of our Vortex, there is a great void space without any Planets. Our Adversaries often ask us, to what purpose this void space serves? But let them not trouble themselves any more; I have found an excuse for it: 'Tis the Apartment of those strange

strange Planets, which come into our

World.

I understand you, *says she*; we do not suffer them to come into the Heart of our Vortex, among our own Planets; but we receive them as the *Grand Signior* doth the Ambassadors that are sent to him; he will not shew them so much Respect as to let 'em lodge in *Constantinople*, but quarters 'em in one of the Suburbs of the City. Madam, *said* we and the *Ottomans* agree likewise in this, that as we receive Ambassadors but never send any, so we never send any of our Planets into the Worlds that are next us.

By this, *says she*, it appears, that we are very proud; however, I do not yet very well know what I am to believe. These foreign Planets with their Tails and their Beards, have a terrible Countenance, it may be they are sent to affright us; but ours that are of another make if they should get into other Worlds are not so proper to make People afraid.

Their Beards and their Tails, Madam, *said* appear

said I, are not real, they are *Phænomena*, and but mere Appearances. These foreign Planets differ in nothing from ours; but entring into our Vortex, they seem to us to have Tails or Beards, by certain sort of Illumination which they receive from the Sun, and which hath not been yet well explain'd. But certain it is, that 'tis but a kind of Illumination; and when I am able, I will tell you how 'tis done. I wish then, *says she*, that our *Saturn* would go take a Tail and a Beard in another Vortex, and affright all the Inhabitants of it. That done, I would have him come back again, leaving his terrible Accoutrements behind him, and taking his usual place amongst our other Planets, fall to his ordinary Business. 'Tis better for him, *said I*, not to go out of our Vortex. I have told you how rude and violent the shock is, when two Vortexes joustle one another, a poor Planet must needs be terribly shaken, and its Inhabitants in no better Condition. We think ourselves very unhappy when a Comet appears; but 'tis the Comet that is in an ill case.

case. I do not believe that, *says she*; it Nigh brings all its Inhabitants with it in very good Health; there can be nothing diverting as to change Vortexes. We go that never go out of our own, lead but a dull Life. If the Inhabitants of a Comet had but the Wit to foresee the time when they are to come into our World they that had already made the Voyage would tell their Neighbours before hand what they would see; they would tell them, that they would discover a Planet with a great Ring about it, meaning our *Saturn*; they would also say, you'll, shall see another Planet which hath four little ones to wait on it; and perhaps some of them, resolv'd to observe the very Moment of their entring into our World, would presently cry out, *A new Sun, a new Sun!* as Sailors use to cry, *Land, Land!*

You have no reason then, *said I*, to pity the Inhabitants of a Comet; yet I suppose you will think their Condition lamentable, who inhabit a Vortex whose Sun comes in time to be quite extinguished, and consequently live in Eternity.

Night

night. How, cry'd the Countess, can very Suns be put out? Yes, without doubt, said I; for People some thousand Years ago saw fixed Stars in the Sky, which are now no more to be seen; these were Suns which have lost their Light, and certainly there must be strange Desolation in their Vortexes, and a general Mortality over all the Planets: for what can People do without a Sun? This is a dismal Fancy, said the Countess, I would not if I could help it, let it come into my head. I will tell you if you please, I reply'd, what in this Particular is the Opinion of Learned Astronomers. They think that the fixed Stars which have disappear'd, are not quite extinguish'd, but that they are half Suns, that is, they have one half dark, and the other half bright; and turning round upon their own Axis or Center, they sometimes shew us their light side, and afterwards turning to us their dark Side, we see them no more. To oblige you, Madam, whose will be of this Opinion, because it is not so harsh as the other; but I cannot make it good, but in relation to some certain

certain Stars; because as some have lately observ'd, those Stars have their regulated times of Appearing and Disappearing otherwise there could be no such thing as half Suns. But what shall we say of Stars, which totally disappear, and never shew themselves again after they have finish'd their Course of turning round upon their own Axis? You are too just Madam, to oblige me to believe that such Stars are half Suns. However, I will try once more what I can do in favour of your Opinion: The Suns are not extinct, they are only sunk so low into the immense Depth of Heaven, that we cannot possibly see them: in this case the Vortex follows his Sun, and all will be well again. 'Tis true, that the greater part of the fixed Stars have not this Motion, by which they remove themselves so far from us, because at other times they might return again nearer to us, and we should see them sometimes greater, and sometimes less, which never happens. But we will suppose that none but the little, light, and most active Vortexes which slip between the others, make certain

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tain Voyages, after which they return again, while the main Body of Vortexes remain unmov'd. 'Tis likewise very strange, that some fixed Stars shew themselves to us, spending a great deal of time in appearing and disappearing, and at last totally and entirely disappear. Half Suns would appear again at their set and regulated time. Now, Madam, boldly declare your Opinion: Must not these Stars of necessity be Suns, which are so much darkned, as not to be visible to us, yet afterwards shine again, and at last are wholly extinct? How can a Sun, *said the Countess*, be darkned, and quite extinguish'd, when it is in its own Nature a Fountain of Light? It may be done, *said I*, with all the ease in the World, if *Descartes*'s Opinion be true, that our Sun hath Spots: now whether these Spots be Scum or thick Mist, or what you please, they may thicken and unite, till at last they cover the Sun with a Crust, which daily grows thicker, and then farewell Sun. We have hitherto scap'd pretty well; but 'tis said, that the Sun for some whole Years together hath

look'd very pale: for example, the Year after Cæsar's Death, it was this Crust that then began to grow; but the force of the Sun broke and dissipated it: had it continued, we had been all lost People. You make me tremble, *reply'd the Countess.* And now I know the fatal Consequences of the Sun's Paleness, I believe, instead of going every Morning to my Glafs, to see how I look, I shall cast my Eyes up to Heaven, to see whether or no the Sun looks pale. Oh, Madam, *said I,* there is a great deal of time required to ruin a World. Grant it, *said she;* yet 'tis but time that is requir'd. I confess it, *said I;* all this immense Mass of Matter that composes the Universe, is in perpetual Motion, no part of it excepted: And it all since every part is moved, you may be sure that Changes must happen sooner or later; but still in times proportion'd to the Effect. The Antients were pleas'd to imagine that the celestial and Bodies were in their own Nature unchangeable, because they observed no change in them; but they did not live long enough to confirm their Opinion.

by their own Experience, they were Boys in comparison of us. Give me leave, Madam, to explain my self by an Allegory : If Roses, which last but a day, could write Histories, and leave Memoirs one to another ; and if the first Rose should draw an exact Picture of their Gardiner, and after fifteen thousand Rose- Ages, it should be left to other Roses, and so left still to those that should succeed without any change in it ; should the Roses hereupon say, we have every day seen the same Gardiner, and in the memory of Roses none ever saw any ^{said} Gardiner but this, he is still the same that he was ; and therefore certainly he will die as we do, for there is no Change And it all in him : Would not these Roses, by Madam, talk very foolishly ? And yet there would be more Reason in their Discourse, than there was in what the Antients said concerning celestial Bodies ; and tho even to this very day there should appear no visible Change in the heavens, and the Matter of which they were made, should have all the Signs of an eternal Duration, without any change ; yet

yet I would not believe them unchangeable, till I had the experience of many more Ages. Ought we, who last but a Moment, to make our Continuance the measure of any other things Duration; 'tis not so easy a matter to be eternal. To have lasted many Ages of Men, one after another, is no Sign of Immortality. Truly, *says the Countess*, I find the Worlds are far from being able to pretend to it. I will not do them so much honour as to compare them to the Gardiner that lived so much longer than the Roses. I begin to think them like the Roses themselves, which blow one day, and die the next: For now I understand that if old Stars disappear, new ones will come in their room, because every Species must preserve itself. No Species Madam, *said I*, can totally perish; some perhaps will tell you, that such new Stars are Suns, which return to our sight again, after they have been a long time hid from us in the Profundity of com Heaven: Others may tell you, they are old Suns cleared from that thick Crust, which once cover'd them. If I should thin

all this possible, yet I likewise believe that the Universe may be fram'd in such a manner, that from time to time it may produce new Suns; why may not that Matter, which is proper to make a Sun, be dispers'd here and there, and gather it self again at long run into one certain place, and lay the Foundation of a new World? I am very much inclin'd to believe such new Productions, because they suit with that glorious and admirable Idea which I have of the Works of Nature. Can we think that wise Nature knows no more than the Secret of making Herbs and Plants live and die by a continual Revolution? I am verily perswaded, and are not you so too, Madam, that Nature, without much cost or pains, can put the same Secret in practice upon the Worlds? I now find, *says the Countess*, the Worlds, the Heavens, and celestial Bodies so subject to change, that I am come to my self again. To come the better again to ourselves, *I re-
solv'd*, let us say no more of these Mat-
ters. We are arriv'd at the very Roof
and Top of all the Heavens; and to tell

you whether there be any Stars beyond it, you must have an abler Man than I am: You may place Worlds there, or no Worlds, as you please. 'Tis the Philosopher's Empire to describe those vast invisible Countries, which are, and are not, or are such as he pleases to make 'em: It is enough for me to have carried your Mind as far as you can see with your Eyes.

Well, *says the Countess*, I have now in my head the System of the Universe. How learned am I become! Indeed, Madam, *said I*, you are pretty knowing; and you are so with the advantage of believing, or not believing any thing I have said. For all my pains I only beg this Favour, that whenever you see the Sun, the Heaven, or the Stars, you will think of me.



The Sixth Evening.

FOR a long time the Countess and I had no farther Discourse concerning the Worlds ; so that I think we had in a manner forgot we ever talk'd about them : when going to make her a Visit, I happen'd to come in just as two Men of Wit, whose Characters are well known, were taking leave. You observe, *said she*, as soon as she saw me, what sort of Visitors I have had ; and I must own to you, they have left me under some suspicion that you have spoil'd my Understanding. *I reply'd*, I should be very proud to have had so much power over her ; for I thought no body could undertake a more difficult Task. I'm afraid however, *says she*, 'tis too true. I fell, I know not how, into a Conversation about the Worlds with the Gentlemen you saw, who, for ought I know, drew me into it out of mere

Malice. I made no scruple of affirming roundly to them, that the Planets were inhabited. One of 'em told me positively, he was very sure, I did not believe it. Poor I, with all the Simplicity imaginable, maintain'd that I did. He took it all as a Feint of one who meant only to be merry; and I doubt the Reason why he persisted so obstinately in disbelieving me concerning my own Sentiments, was, that he had too great an Esteem for me to imagine me capable of so extravagant an Opinion. The other indeed, whose Respect for me did not rise so high, took me at my word, and believ'd me: but why would you set my Head a running upon a thing, which no one who values me, can ever be persuaded I am serious in maintaining? And why, Madam, *answer'd I*, should you maintain it seriously with Persons, who, I am confident, never apprehend any Reasoning which is in the least degree serious? Must the Inhabitants of the Planets be put to such Hazards? No, let us content ourselves with our little select Party

ty that believes them, and not publish our Mysteries to the Vulgar. I hope, *said she*, you don't call those two Gentlemen the Vulgar. They have a great deal of it, *I answered*, but they never reason ; and the Reasoners, who are blunt Speakers, and compliment no body, call all such the Vulgar, without any difficulty. On the other hand, such Persons revenge themselves by turning the Reasoners into Ridicule ; and it seems to be very happily order'd, that each Kind despises the Talent it wants. One ought, if it were possible, to accommodate one's self to every Man after his particular kind. Accordingly, it would have been much better to have made the Inhabitants of the Planets a Subject of Pleasantry with these Gentlemen, than of Reasoning, because they understand Pleasantry, but not Reasoning. By this Method, you would have sent them away with the highest Esteem of you ; and the Planets would have lost not a single Inhabitant of their Number. What, *cry'd the Countess warmly*, should I betray the Truth ! certainly you are a Man of no

Conscience. I must confess, *reply'd I,* that I have no mighty Zeal for Truths of this Nature, and would freely sacrifice a thousand of them to the smallest Conveniences in Society. For instance, I see what hinders, and what will continually hinder People from thinking the Opinion of the Planets being inhabited, so probable and well grounded, as in reality it is: the Planets always appear to the Eye like Bodies that give Light, and not as large Countries, or spacious Fields: We should easily believe that Fields or Countries might be inhabited, but not luminous Bodies. 'Tis in vain that Reason informs us there are Countries and Fields in the Planets. Reason comes too late: the Sight has first had its effect upon us; we are deaf to all she can say, and the Planets are nothing but luminous Bodies. Besides, what Shape can their Inhabitants have? Our Imagination must immediately represent to us their Figures, which is not in our power. The shortest Way then is, to believe they are not in being. Now in order to fix Inhabitants in the Planets

nets, in which I am so remotely interested, would you have me attack these formidable Powers, call'd the Senses and the Imagination? An Enterprize that requires no small Courage. One cannot easily persuade Men to make their Eyes give place to their Reason. I meet with several who have so much Reason as to be willing, after a multitude of Proofs, to believe the Planets are Earths; but they do not believe it in the same manner as they would if they had not seen them under a different Appearance. The Idea they first receiv'd of them is perpetually returning, and they never entirely quit it. These are the Persons who in believing this Opinion of ours, seem however to do it a favour, and to incline to it only on account of a certain Pleasure the Singularity of it affords them.

What! interrupted *she*, is it not sufficient then, that an Opinion is probable and likely to be true? You would be surpriz'd, *I answer'd*, if I should say this term *probable* and *likely* to be true, is a very modest Expression. Is it only probable

bable there was such a Man as *Alexander*? You are certain of it; and upon what is this Certainty founded? Upon this: you have all the Proofs you can desire in a matter of this nature; and there is not the least occasion of doubting to make you suspend your Assent: yet you have never seen *Alexander*, nor have you a Mathematical Demonstration that he must have been. But what will you say if the Case should be very much the same with the Inhabitants of the Planets? There is no way to give you a sight of them, nor can you demand it to be demonstrated like a Point in the Mathematicks; but you have all the Proofs which can be ask'd in such a Case: the perfect Resemblance between the Planets and the Earth which is inhabited; the Impossibility to imagine any other Use for which they are made; the Fruitfulness and Magnificence of Nature, and some particular Regards she appears to have had for the Necessities of their Inhabitants, by giving Moons, for instance, to the Planets which are far off from the Sun.

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and several to those which are the most distant: and, what is very important, there is all this on the one hand, and nothing at all on the other; nor can you find the least Reason to question it, unless you reassume the Eyes and Wit of the Vulgar. In short, supposing there were these Inhabitants, they could not shew themselves by more Tokens, nor more sensible ones. After all this, Madam, pray consider whether you ought to look upon it as a matter merely probable? But you would not have this, *reply'd she*, appear as certain to me, as it does that there was an *Alexander*? Not quite, *answer'd I*; for tho we have as many Proofs of the Inhabitants of the Planets as we can come at in the Situation we are plac'd in, yet these Proofs are not very numerous. In truth, *cry'd the Countess*, I am on the point of rejecting these Inhabitants; I am at such a loss under what Rank to consider them: they are not absolutely certain, it seems, and yet they are more than probable; this embarrasses me too much. Ah, Madam, *reply'd I*, never let

let that discourage you. The most common and ordinary Clocks point out the Hours, but only those which are more curiously made, express the Minutes. In like manner, a common Capacity easily perceives the difference between a bare Probability, and absolute Certainty ; but it is only a refin'd Understanding which observes the several degrees of either ; and, as I may say, distinguishes the Minutes. You may place the Inhabitants of the Planets a little short of *Alexander*, but beyond many Points of History which are not prov'd. And this, I think, is their proper place. I love Order, *says she*, and I am oblig'd to you for ranging my Ideas. But why did you not do it sooner ? Because, *said I*, tho' you believ'd the Inhabitants of the Planets a little more or less than the matter deserves, there is no harm done. I am so sure you don't believe the Motion of the Earth as much as you ought ; but certainly are you therefore to be pity'd ? Ohing, for that, *says she*, I do as I ought ; and would you have nothing to reproach me with the

I firmly believe that the Earth moves. In the mean time, *said I*, I have not yet given you the best Proof of it. Nay then, *says she*, 'tis a sort of Treachery, to have drawn me in to believe Things, by bringing me only the flightest Proofs. What! you don't think me worthy of believing upon good Reasons? I thought best, *I reply'd*, to prove these things to your Ladyship by little soft Reasonings only, after your own way. Ought I to have produc'd sturdy and robust Arguments, as if I had been attacking a Doctor? Yes, *said she*, I desire you will at present take me for a Doctor, and produce this new Proof of the Earth's Motion.

With all my Heart, *said I*; 'tis this — I am very well pleas'd with it; perhaps because I fancy it is my own Discovery; and yet it is so good and so natural a Reasoning, that I dare be confident I am the Inventor. It is very uncertain, that a conceited Man of Learning, who would undertake to answer it, and would be forced to talk a great deal; with the only way by which a Man of Learning

ing can be confounded. Either the Celestial Bodies revolve in 24 Hours round the Earth, or the Earth turning upon its own Axis in 24 Hours, imputes this Motion to all the Celestial Bodies. But that they make this Revolution round the Earth, is the most improbable Supposition in the World, tho the Absurdity of it does not immediately appear. It is plain, that all the Planets make great Revolutions round the Sun ; but these Revolutions are very different, according to their several distances from it. The most remote perform their Course in more Time ; which is very natural ; and the same Order is observ'd among the secondary Planets which turn about a great one. The four Moons of *Jupiter*, and the five Moons of *Saturn*, describe their Circles in more or less time round their principal Planet, according as they are more or less distant from it. Besides, the Planets have Motions upon their proper Centers ; which Motions likewise are unequal. We don't know by what Laws this Inequality is govern'd ; whether

ther it is by the different Magnitude of the Planets, or the Velocity of the particular Vortices which surround them, and of the liquid Matter thro which they are mov'd. But, in short, this Inequality is certain ; and generally speaking, such is the Order of Nature, that whatever is common to many things, is vary'd at the same time by particular differences.

I apprehend you, *interrupted the Countess*, and believe you have Reason in what you say. Yes, I am of your Opinion, that if the Planets turn'd about the Earth, they would do it in unequal times, according to their distances, as they do about the Sun : Is not that your Meaning ? Exactly, Madam, *answer'd I* ; their unequal Distances with respect to the Earth, and their different Magnitudes, and the different Velocities of the particular Vortices which inclose them, must produce differences in this pretended Motion round the Earth, as well as in all the other Motions ; and the fix'd Stars, which are so prodigiously distant from us, and so far

far beyond the reach of whoever could carry them round the Earth by a general Motion, or at least are seated in a place where this Motion must be very weak ; is there not all the appearance imaginable, that they do not turn round the Earth in twenty-four Hours like the Moon which is so very near us. Must not the Comets also, which belong not to our Vortex, and have Orbits so different one from another, and such different Velocities, be excus'd from running round us in the same time ? No ; according to this Opinion, the fix'd Stars and Comets must all wheel about the Earth in so many Hours. However, if there were some Minutes difference in these Revolutions, one might be satisfy'd ; whereas they are perform'd with the most exact Equality, or rather with the only exact Equality that is to be found ; not a Minute more or less. In truth, this Opinion ought to be violently suspected.

Nay, *said the Countess*, since it is possible, this great Equality may be only in our Imagination ; I am sure it exists

no where else. I am well enough pleas'd that a Thing which is not the Work of Nature, should light entirely upon us, and that she should be clear'd of it, tho at our Expence. For my part, *answer'd I,* I am so little a Friend to this perfect Equality, that I do not find it holds so far as that the daily Revolutions of the Earth about her own Axis are made precisely in twenty-four Hours, and are always equal to one another. I am much inclin'd to believe there is a difference. A Difference! *cry'd the Countess:* Pray, do not our Pendulums shew they are exactly equal? I must except, *answer'd I,* to the Pendulums; it is impossible they themselves should be exactly true; and if they were so sometimes, one would, in observing one diurnal Revolution to be longer or shorter than another, believe the Pendulums irregular, rather than suspect the Earth of any Irregularity in her Motion. You see what a pleasant sort of Respect I have for the Earth; I would trust to her very little more than to a Pendulum; the same things

things nearly which disorder the one, will disorder the order; I only believe it requires more Time to disorder the Earth sensibly, than a Pendulum: this is all the Advantage I can allow her. May not the Earth by little and little approach nearer the Sun? and being then in a place where the Matter is more agitated, and the Motion more rapid, she may in less Time make her double Revolution both about the Sun and about her own Axis. The Years may be shorter, and so may the Days; but we may not be able to perceive it, because the Year would still be divided into 365 Days, and the Day into 24 Hours: And so without living longer than we do at present, we should live more Years; and on the contrary, let the Earth go farther from the Sun, and we shall live fewer Years, and yet not less Time. It seems very likely, *said she*, that when this happens, a Series of Ages would produce but little difference. I grant it, *answer'd I*; Nature is not blunt in her Conduct, and unprepar'd; her Method is to do every thing by degrees, which

are

are not sensible, unless in very easy and immediate Alterations. We can scarce-
ly discern any other than that of the
Seasons; as for the rest which are lei-
surely, they almost escape us. In the
mean time, every thing is in a conti-
nual Motion, and there is nothing that
is not grown very old, not excepting a
certain Girl in the Moon, that was seen
there by the help of Telescopes about
twenty Years ago: she had a Face
handsom enough; but now her Cheeks
are funk, her Nose lengthen'd, her Fore-
head and Chin advanc'd, so that all her
Charms are vanish'd, and there are great
Apprehensions that her Days are draw-
ing to an end.

What Romance is this, *says the Coun-
teſſ*, interrupting me — 'Tis no Ra-
lley, Madam, I assure you. It seems
there was discover'd in the Moon a very
particular Figure, like the Head of a
Woman, appearing from among the
Rocks; in which Parts there has hap-
pen'd a considerable Change; some pie-
ces of the Mountains are fallen, and
have laid open to the sight three Points

which can now only serve to make the Forehead, Nose and Chin of an old Woman. Does it not look, *says she*, as if there was a malicious Destiny that particularly attends Beauty? It was this very Head of the Girl which it singled out of the whole Moon to attack. Perhaps to make amends, *answer'd I*, the Changes which happen in our Earth, may strike out some beautiful Face for the People of the Moon to gaze at. Some Face I mean like that of the Moon; for every one clothes an Object with those Ideas which are familiar to his Thoughts. Our Astronomers see in the Moon, the Faces of Girls; and perhaps if the Women were to make Observations, they would discern there the Faces of handsom Men. For my part, Madam, I don't know whether I should not see your Ladyship's. I must confess, *said the Countess*, it would be extremely obliging in one to spy me out in the Moon. But to return to what you told me just now; do there happen considerable Changes to the Earth?

There

There is some Appearance, said I, of such a thing. The Fables say, *Hercules* with his Hands divided the two Mountains *Calpe* and *Abila*, which stood between *Africk* and *Spain*, and prevented the Course of the Ocean, and that the Sea immediately rush'd in with Fury upon the Land, and made the great Gulf call'd the *Mediterranean*. Fables are not always entirely such, but are Historys of distant Times, though disguis'd either by the Ignorance of People, or from the love they have for Wonders; both which Weaknesses Mankind have been subject to of old. That *Hercules* with his Hands pull'd two Mountains asunder is not very credible; but that in the Time of a certain *Hercules*, (for there have been fifty of the Name) the Ocean, assisted perhaps by an Earthquake, overturn'd two Mountains which were less strong than the rest, and forc'd a Way between *Europe* and *Africk*, I can believe without much difficulty. Here then was a noble Spot which the Inhabitants of the Moon saw break out all at once upon our Earth.

For Seas, you know, Madam, always look like Spots : at least, it is the common Opinion that *Sicily* was separated from *Italy*, and *Cyprus* from *Syria* : sometimes new Islands also start up in the Sea ; Earthquakes have sunk some Mountains, and produc'd others, and chang'd the Course of Planets. Philosophers make us afraid the Kingdom of *Naples* and *Sicily*, the Soil of which stands upon large subterraneous Vaults fill'd with Sulphur, should one day fall in, when the Vaults are unable to resist the Fires which are within them, and which at present are not discharg'd by such Issues as *Vesuvius* and *Ætna*. Is not this enough to diversify the Spectacle we afford to the Inhabitants of the Moon ?

I had much rather, *cry'd the Countess*, we should tire them with the same Appearance perpetually, than divert them by swallowing up Provinces.

For ought I know, *answer'd I*, there may have been several burnt up in *Jupiter* a little while ago. Provinces burnt up in *Jupiter* ! Certainly, *said she*, this would be a strange piece of News there.

Very

Very strange, said I; there has been seen this Year in *Jupiter* a long Track of Light, much brighter than any other part of that Planet. We have had our Deluges, and perhaps in *Jupiter* they are liable to Conflagrations. How can we tell? *Jupiter* is ninety times bigger than the Earth, and revolves round his own Axis in ten Hours; whereas we are twenty-four Hours in revolving; so that his Motion is 216 times stronger than ours: In so violent a Rotation, may not the drier and more combustible Parts catch Flame, as an Axeltree sometimes, or an Arrow shot with extraordinary force takes fire? But be this as it will, this Light of *Jupiter* is not comparable to another, which in all appearance is as antient as the World, and which however has never been seen. How does this Light do to hide it self, said she? It must have a very particular Art for that.

It shews itself, answer'd I, only at the Twilights, which are generally strong enough to hide it; or if they let it appear, either the Vapours of the Hori-

zon smother it, or it is so scarcely perceptible, that unless one observes very exactly, it is taken for the Twilight itself. But in short, for about these sixteen Years, it has been plainly distinguish'd, and has been the Entertainment of the Astronomers for some time, whose Curiosity wanted to be awaken'd by something new. The discovering even so many new secondary Planets would not have touch'd them: they were not transported, for instance, at the last two Moons of *Saturn*, as they had been at the Satellites or Moons of *Jupiter*; they were accustom'd to all this: But now a Month before and after the Vernal Equinox, when the Sun was set, and the Twilight shut in, we see a certain whitish Light resembling the Tail of a Comet. It is seen before Sun-rise and before the Twilight about the Autumnal Equinox, and about the Winter Solstice in the Evening and Morning: at other times, as I said, it is lost in the other Twilights, which are too bright, and last too long; for they suppose it always subsists, and in all likelihood it does so each

They

They conjecture it arises from a large quantity of gross Matter which encompasses the Sun to a certain distance ; that the greatest part of his Rays pass thro this Inclosure, and come to us in a strait Line ; but some of them striking upon the inner Surface of it, are transmitted down to us, and reach us either before the direct Rays have reach'd us in the Morning, or after they can no longer reach us in the Evening. As these reflected Rays are darted from a greater height than the direct, they must consequently be with us sooner, and go flower away.

Upon this foot I must retract what I told you, That the Moon could have no Twilights for want of a gross Air about her like the Earth. But this will be no loss to her ; her Twilights may arise from such a Body of Air as surrounds the Sun, and which reflects the Rays upon such places where the direct Beams cannot come. And mayn't this, *said the last Countess*, furnish Twilights also for all the Planets, who will have no occasion to be each of them encompassed with such

a gross Air, since this of the Sun alone may serve for all the Planets of the Vortex? I am ready to believe Nature, according to the Oeconomy I know she affects, would employ no other Means. Notwithstanding this Oeconomy of hers, *said I*, there might be with respect to our Earth, two causes of the Twilights; one of which, namely the gross Air about the Sun, would be of very little use, and only serve as an Object for the Curiosity of the Members of an Observatory. But to speak freely; it is possible that the Earth alone sends forth Vapours and Exhalations gross enough to produce Twilights, and that Nature saw it proper to provide by one general Means for the Necessities of all the other Planets, which are purer, if I may say it, and whose Evaporations are more subtile. Perhaps among all the Inhabitants of the several Worlds in our Vortex, we are they who requir'd a gross and heavy Air to breathe in. With what Contempt would the Inhabitants of other Planets look upon us, if they knew this?

The

They would be to blame, *says the Countess*; there is no reason to despise us for being encompass'd with a heavy Air, since the Sun himself is in the same Condition. Pray is not this Air produc'd by certain Vapours, as you told me once, which serve to break the first Force of the Rays, which might otherwise have been too violent? I imagine the Sun may have a Veil drawn about him naturally, in order to make him proportion'd to our Uses. In truth, Madam, *said I*, you have struck out the beginning of a System happily enough: You may add, that these Vapours may produce a sort of Showers, which may fall upon the Sun to refresh him, in the same manner as we sometimes throw Water upon a Fire when it is too fierce. There is nothing we ought not to presume from the Dexterity of Nature; but she has another kind of Dexterity wholly singular, to hide herself from us, and we must not assure ourselves too easily that we have found out her Manner of acting, or her Designs. In making new Discoverys, we should not be

too hasty to reason, tho we have always Inclination enough to do it; and true Philosophers are like the Elephants, who in marching, never set down a second Foot to the Ground, till they have fix'd the first sure. I think this Comparison, *interrupted she*, the juster, because the Merit of either of the Parties, the Elephants and the Philosophers, consists in any outward Graces or Charms. I agree, that we should imitate the Wariness of the one and the other; and if you will teach me some of the late Discoveries, I promise you not to make a System in haste.

I have told you already, *answer'd I*, all the News I know of the Heavens; and I believe there are no fresher. I am mighty sorry we have no Advices thence, as surprizing and marvellous as some Observations I read the other day, in an Abridgment of the Annals of *China*, written in *Latin*, and printed a little while ago. There one may see a thousand Stars at a time fall from the Sky into the Sea with a great Crash, or else they dissolve and turn to Rain;

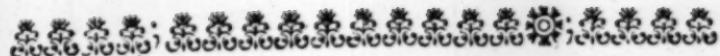
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and this has been seen more than once in *China*. I have found this Observation in two several Times distant enough from each other, without reckoning a Star which travels towards the East, and bursts with a huge Report, like a Fusée. It is pity these Sights are reserv'd only for *China*, and that our Countries never have a share in them. Not long since, all our Philosophers thought they had a Foundation in Experience, to maintain, That the Heavens and all the Celestial Bodies were Incorruptible, and incapable of Change; and at the same time, other Men, in another Quarter of the World, saw Stars melt down by thousands. There is some difference in this. But, *said she*, have not I always heard the *Chinese* were very great Astronomers? True, Madam; but the *Chinese* have the advantage to be separated from us by a large Space of Land, as the *Greeks* and *Romans* are by a long Series of Ages; and all Distance has a right to impose upon us. In truth, I am more and more persuaded there is a certain Genius which has hitherto been con-

fin'd within our *Europe*, or which at least has extended very little beyond it. Perhaps it has not been permitted to spread itself over a great Tract of Country at a time, and that some Fatality has set it such narrow Bounds. Let us enjoy it, while we have it; the best of it is, that it does not confine itself to the Sciences and dry Speculations, but reaches with success even to Things entertaining and agreeable, in which I question whether any People have equal'd us. These, Madam, are the things you ought to employ yourself about, and which ought to compose your Philosophy.

*The End of the Discourse of the
Plurality of Worlds.*



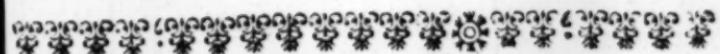


A

DISCOURSE

Concerning the
Antients and Moderns.

Translated from the *French* of
Mons. FONTENELLE.



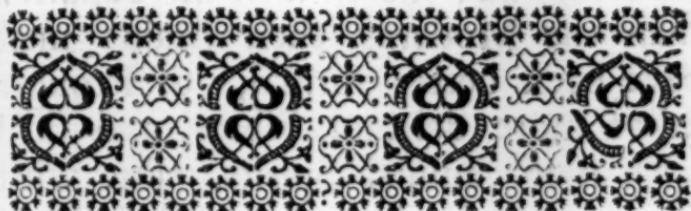


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A
 DISCOURSE
 Concerning the
 Antients and Moderns.



HE whole Dispute for Pre-eminence between the Antients and Moderns being well understood, has this short Issue, *viz.* to know whether the Trees which formerly grew in our Fields were larger than these of the present Time. If they were, *Homer, Plato, Demosthenes* cannot possibly be equall'd in these later Ages; but if otherwise, they can.

Let

Let us explain this Paradox. If the Antients had more Wit or Capacity than the Moderns, their Brains must have been better form'd, of stronger or of more delicate Fibres, and fill'd with more animal Spirits. But what could be the Cause of this? Their Trees then must have been larger and more beautiful: for if Nature at that time was younger and more vigorous, Plants as well as human Brains must have shar'd of this Youth and Vigour.

Let the Adorers of the Antients take care what they say, when they tell us *They* are the Sources of good Taste and Reason, and the Luminaries destin'd to give Light to all Mankind: that no body has Wit or Judgment, but in proportion to his Veneration for them; that Nature has exhausted herself in producing those great Originals: For in truth, they make them of a Species different from us, and Philosophy does by no means agree with all these fine Expressions. Nature has between her Hands that a kind of Clay, which is always the same, which she forms and reforms into

a thousand Shapes, and of which she makes Men, and Beasts, and Plants: And 'tis ridiculous to fancy that she compos'd *Plato*, *Demosthenes*, or *Homer* of a finer Mold, or better prepar'd, than the Philosophers, Orators, and Poets of the present time. For tho our Minds are immaterial, I regard here only their Union with the Brain, which is material, and which, according to its various Dispositions, produces all the Difference between them.

But tho the Trees of all Ages may have been equal, those of all Countries are not; and this too makes a Difference among the Wits of Men. Different Ideas are like Plants or Flowers, which do not equally flourish in all Climates. Perhaps our Soil of *France* is no more proper for the Reasonings of the *Egyptians* than for their Palm-Trees: and (without travelling so far) perhaps Oranges, which do not grow here so kindly as in *Italy*, are a Proof that *Italy* has a Turn of Wit, which cannot exactly be match'd in *France*. It is certain, that by the Enchainment and

and reciprocal Dependance which there is among all Parts of the material World, the Difference of Climates, which shews it self in Plants, ought in like manner to extend to human Brains, and have some Effect on them too.

However, this Effect is not so great or sensible, because Art and Culture have more power upon the Brains of Men than upon Earth, which is of a Matter more hard and untractable. Thus the Thoughts of some Countries may more easily be transplanted into others than their Trees and Fruit; and it will not be so difficult for us to take the *Italian* Genius in our Writings, as to raise the *Italian* Oranges.

And tho 'tis commonly said, that there's a greater Diversity among Wits than Faces, I am not very sure 'tis true. For Faces, by stedfastly regarding one another, do not take new Resemblances, as Wits may by mutual Commerce. Thus Wits, which are naturally as different as Faces, are brought not to differ so much.

The

The Facility which Wits have of forming themselves one by another, is the Cause that People do not always retain the original Turn which they deriv'd from their own Climate. The Study of *Grecian* Books proportionably works in us the same Effect as if we marry'd none but *Greek* Women. 'Tis certain, that by such frequent Alliances, the Blood of *Greece* and that of *France* would alter, and that the particular Look of each Nation would be a little chang'd.

Besides, as 'tis impossible to judge what are the most favourable Climates for Wit, but that they have, in all appearance, Advantages and Disadvantages which counterballance each other; and that those which naturally give more Vivacity, give less Justice, and so of the rest; it follows, that the Difference of Climates ought to pass for nothing, provided that Wits are equally cultivated. At most, one might imagine that the torrid Zone, and the two frozen, are not very proper for the Sciences. As yet they have not pass'd *Egypt* and *Mau-*

Mauritania on one side, and *Sweden* on the other. Perhaps it has been only by chance that they have confin'd themselves between Mount *Atlas* and the *Baltick Sea*. No body knows certainly that these are the Bounds which Nature has fix'd to them, and whether we may not hope to see, at some time or other, great Authors among the *Laplanders* or the *Negroes*.

However it be, this seems to me to be the whole Matter of the grand Question concerning the Antients and the Moderns. Ages make no natural Difference between Men: the Climate of *Greece* or *Italy* and that of *France*, are too near to create any sensible Difference between the *Greeks* or *Latins*, and the *French*: or when they do create any, 'twould be easy to efface it; and in short, this Difference would be no more to their Advantage than to ours. It follows then that we are all upon an Equality, Antients and Moderns, *Greeks*, *Latins*, and *French*.

I will not be answerable that this Reasoning shall appear conclusive to all the World.

World. If I had employ'd great Flights of Eloquence, and oppos'd Passages in History which favour the Moderns, to other which favour the Antients; if I had treated those like Pedants, who treat us like Ignorants or superficial Wits, and according to the establish'd Law among the Learned, had repay'd Injury for Injury to the Favourers of Antiquity, my Arguments would possibly have been better lik'd. But in my opinion, this were to make the Cause endless, and after a great many choicee Detrac-tions on each side, 'twould surprize one to find that nothing were determin'd. The shortest way therefore thought would be to have recourse to Natural Philosophy, which alone has the Secret of abridging those Controversies, which Rhetorick renders infinite.

And thus, for example, after one is convinc'd of the natural Equality between the Antients and the Moderns, there remains no Difficulty: But one sees plainly that all the Differences, whatever they are, must certainly be caus'd

caus'd by foreign Circumstances, such as Times, Governments, and the State of Affairs in general.

The Antients have invented every thing: ('tis upon this their Partisans triumph) and therefore they had Wit in a much greater Proportion than we. Not at all. But they had Wit before us. True. Yet they might as well boast that they have drank first of our Rivers, and insult us for being forc'd to drink only their Leavings. Had we been in their place, we should have invented, were they in ours, they would have improv'd our Inventions: and this is all the mighty Mystery.

I speak not here of Inventions which have been purely owing to Chance, and of which one might, if he pleas'd, make it ha a Merit to the most stupified Blockhead on Earth: I mean only such as require some Thought and Effort of Mind. 'Tis certain that the meanest of this kind have been reserv'd only for extraordinary Genius's, and that the most that *Archimedes* could have done in the Infancy of the World, would have been alrea

to invent the Plough: But place him in another Age, and he fires the *Roman* Navy with Glasses; if that, by the way, be not a Fable.

If a Man were inclin'd to flourish on the Subject, he might maintain in honour of the Moderns that the Wit of Man need not be much strain'd for the first Discoveries, to which Nature itself seems to guide us; but that it requires a greater Effort to add something: and the greater yet, by how much the more has been added already, because the Matter is more exhausted; and what remains to be discover'd, lies deeper from the View. The Admirers of Antiquity would not possibly have neglected such a Reasoning as this, if it had favour'd their Party. But I will own however, that I think it has not sufficient Solidity.

"Tis true, that to improve upon Discoveries, does often require a greater Effort of Mind, than to have made 'em first: but at the same time we find less Difficulty for this Effort. The Mind is already enlighten'd by these very Discoveries

veries which it has before its View, we have the Eyes of others added to our own; and if we surpass the first Inventor, 'tis by his own Assistance: so that he has always his Share in the honour of our Work; and if he withdrew that which belongs to him, there would not be more remaining to us than to him.

I carry the equitable Part so far on this Head, that I allow the Antients for every thing possible, even for a World of false Views and bad Reasonings they have fallen into, and foolish Things they have said. Such is our Condition, that 'tis not permitted us at once to arrive at any thing reasonable, be it on what Subject it will: we must first be forc'd to wander a long time, and pass thro many sorts of Errors, and several Degrees of Impertinence. It would have been always easy, one would think, to find out that the whole Legerdemain of Nature consists in the Figure and Motion of Bodies: And yet before thus much could be attained, there was a Necessity of trying *Plato's Ideas*, *Pythagoras's Numbers*, *Aristotle's Qualities*; and

and when all this was found to be false, the World was forc'd upon the true System. Forc'd, I say, for indeed there was no other left ; and this seems to have been withstood as long as possible. We are oblig'd to the Antients for having exhausted the false Ideas as much as they could. There was a Necessity to pay that Fine to Error and Ignorance, which they have done ; and we ought not to be wanting in our Acknowledgments to those who have acquitted us from it.

This is the Case in several Matters, on which there are a great many Imper-
tinencies, which we should have said, if they had not been said before, and in a manner taken away from us. And yet there are Moderns who sometimes make a shift to lay hold of 'em again, perhaps because they have not been so often repeated as they must be. Thus being assisted by the Views of the Antients, and even by their Faults themselves, 'tis not strange we should go beyond them. If we only equall'd them, we must be of a very inferiour Make to theirs,

190 *A Discourse concerning
theirs, we must be scarcely Men as they
were.*

In the mean time, that the Moderns may be able always to excel the Antients, 'tis necessary the Subject be of such a Nature as will admit of this. Eloquence and Poetry require a certain Number of Views less extended than the other Arts, and which depend chiefly on the Vivacity of the Imagination. Now Men in a few Ages may have amass'd a considerable Number of Views; and the Vivacity of the Imagination has no need of a long Train of Experiences, nor of a great many Rules to form it to all the Perfection 'tis capable of. But Natural Philosophy, Physick, and Mathematicks are compos'd of an infinite Number of Views, and depend on the Justness of Reasoning, which ripens by very slow degrees, and is always improving. Besides, 'tis often necessary that these Arts be assisted by Experiments which Chance makes, and does not carry to the propos'd Point. 'Tis evident that all this is endless, and that the last Physicians or Mathematicians

cians must naturally be the most accomplish'd.

And in effect, 'tis certain that the principal Part in Philosophy, and the Manner of Reasoning, which from thence extends to every thing else, has been brought to a great Perfection in this Age. I very much question whether the Majority will assent to the Remark I am going to make; yet I'm resolv'd to make it for the sake of those who are Judges of Reasoning: and I may boast too that 'tis no small Courage, for the sake of Truth, to stand the Censure of all the rest, who are no contemptible Number. Let the Subject be what it will, the Antients are too apt to be uncorrect in their Reasoning. Slight Agreements, little Similitudes, trifling Fancies, rambling and confus'd Harangues pass with them for Proofs; so that to prove, costs them nothing. But what an Antient would demonstrate in play, would be a Task to make a poor Modern sweat; for how severc are we now upon Reasonings? We require 'em to be intelligible, just, con-

conclusive. We have the Malice to unravel the least Equivocation either of Thought or Expression, and the Boldness to condemn the most ingenious Turn in the World, if it does not reach the Matter. Before *Des Cartes* appear'd, People reasoned much more commodiously ; and 'twas happy for preceding Ages, that they had not this Man to disturb them. It was he, as far as I can judge, that brought in this new Method of Reasoning, much more valuable than his Philosophy, of which a great part is found to be false or uncertain, even according to the Rules he himself has taught us. In fine, there reigns in all our valuable Writings, not only of Philosophy and Mathematicks, but likewise of Divinity, Morality, and Criticism, such a strict Justness as till now was very little known, if at all.

I am persuaded too, that this will be advanc'd yet further. We have not left dashing our best Writings yet with a little of the old way of Reasoning : But we shall be Antients hereafter ; and will it not be just that our Posterity in turn

turn should amend and outdo us, especially in the manner of Reasoning? which is a Science by itself, and the most difficult too, tho the least cultivated of all.

As for Eloquence and Poetry, which are the chief Points in dispute between the Antients and Moderns, tho they are not in themselves of great Importance, yet I think the Antients may have had the power to attain the Perfection of 'em, because, as I said, it may be attain'd in few Ages; and how many were sufficient for it, I don't precisely know. The *Greeks* and *Latins*, I say, might have been excellent Poets and Orators; but the Question is, whether they have been so. To clear this, would be to enter into an Enquiry which were endless, and which, were it ever so just and exact, would never satisfy the Favourers of Antiquity. For which way shall they be reason'd with? They are resolv'd to forgive their Antients every thing, nay to admire 'em in every thing. This is particularly the humour of Commentators, the most superstitious

conclusive. We have the Malice to unravel the least Equivocation either of Thought or Expression, and the Boldness to condemn the most ingenious Turn in the World, if it does not reach the Matter. Before *Des Cartes* appear'd, People reasoned much more commodiously ; and 'twas happy for preceding Ages, that they had not this Man to disturb them. It was he, as far as I can judge, that brought in this new Method of Reasoning, much more valuable than his Philosophy, of which a great part is found to be false or uncertain, even according to the Rules he himself has taught us. In fine, there reigns in all our valuable Writings, not only of Philosophy and Mathematicks, but likewise of Divinity, Morality, and Criticism, such a strict Justness as till now was very little known, if at all.

I am perswaded too, that this will be advanc'd yet further. We have not left dashing our best Writings yet with a little of the old way of Reasoning: But we shall be Antients hereafter ; and will it not be just that our Posterity in turn

turn should amend and outdo us, especially in the manner of Reasoning? which is a Science by itself, and the most difficult too, tho the least cultivated of all.

As for Eloquence and Poetry, which are the chief Points in dispute between the Antients and Moderns, tho they are not in themselves of great Importance, yet I think the Antients may have had the power to attain the Perfection of 'em, because, as I said, it may be attain'd in few Ages; and how many were sufficient for it, I don't precisely know. The *Greeks* and *Latins*, I say, might have been excellent Poets and Orators; but the Question is, whether they have been so. To clear this, would be to enter into an Enquiry which were endles, and which, were it ever so just and exact, would never satisfy the Favourers of Antiquity. For which way shall they be reas'ned with? They are resolv'd to forgive their Antients every thing, nay to admire 'em in every thing. This is particularly the humour of Commentators, the most superstitious

Sect of all the Worshippers of Antiquity. How happy would our greatest Beauties think themselves, if they could inspire their Lovers with as strong and tender a Passion, as that with which a *Greek* or *Latin* Author inspires his enamour'd Interpreter?

Yet I will venture to say something more particular concerning the Eloquence and Poetry of the Antients: not that I am insensible of the Danger of declaring one's self; but because I fancy that my small Authority, and the little Regard which will perhaps be paid to my Opinions, leave me at full liberty to say what I please. I think, Eloquence has been carry'd to a greater Height among the Antients, than Poetry, and that *Demosthenes* and *Cicero* are more perfect in their kind, than *Homer* and *Virgil* in theirs; and that for a very natural Reason. Eloquence was a Recommendation to every thing in the *Greek* and *Roman* Republicks; and it was as fortunate to be born with a Genius for Speaking well, as it would be now to be born worth some Thousands a Year.

Poetry,

Poetry, on the contrary, was worth nothing ; it would turn to no account ; and it has been always the same, in all kinds of Governments. It is a Misfortune that seems inseparable from it. I think too, that both in Poetry and Eloquence, the *Greeks* must yield to the *Romans* ; excepting in one kind of Poetry, I mean Tragedy, in which the *Romans* have nothing that can dispute with the *Greeks*. According to my particular Taste, *Cicero* is superior to *Demosthenes*, *Virgil* to *Theocritus* and *Homer*, *Horace* to *Pindar*, and *Titus Livius* and *Tacitus* to all the Greek Historians.

This Order, according to the Hypothesis we have laid down, is very natural. The *Latins* were Moderns in relation to the *Greeks*. But as Eloquence and Poetry are pretty much limited, there must have been a Time when they were carry'd to the highest Perfection ; and the Time, I take it, for Eloquence and History, was the Age of *Augustus Cæsar*. I have no Idea of any thing superior to *Cicero* and *Titus Livius* : not that they are without their Faults ;

but I believe it impossible to have fewer Faults, with so great Excellencies; and every one knows, that there is no other way in which we can ascribe any Perfection to Mankind.

The most beautiful Versification in the World, is that of *Virgil*; and yet it would not have been amiss perhaps, if he had had Leisure to have retouch'd it. There are many parts of the *Aeneid* which appear to be of the most exquisite and finish'd Beauty, and which I believe will never be surpass'd. As for the Disposition of the Poem in general, the Manner of bringing about the Events, and managing the agreeable Surprises, the Nobleness of the Characters, and Variety of the Incidents, I shall not wonder if I should see *Virgil* excell'd; and our Romances, which are Poems in Prose, have already shewn us, that it is possible.

I do not intend to enter into a farther Detail of Criticism on this Head; I would only shew, that since the Antients may possibly have arriv'd to the greatest Perfection in certain Things,

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or may not, we ought, when we examine whether they have actually arriv'd to that Perfection, or no, to have no respect for their great Names, no indulgence for their Faults, but to treat them, in short, as if they were Moderns. We should be able to hear or say, without any softning, that such a thing is an Impertinence in *Homer* or *Pindar*: we should have the Courage to believe, that mortal Eyes may spy Faults in these Great Genius's. We should be able to suffer *Demosthenes* and *Cicero* to be compar'd to some Person with a modern Name, and perhaps not of the first Rank. How great and prodigious an Effort of Reason!

Upon this Occasion, one cannot help laughing at the fantastical Humour of Mankind. Prejudice for Prejudice, it would be more reasonable certainly to entertain them in favour of the Moderns than of the Antients. The Moderns are Moderns, and naturally ought to out-do the Antients. This Profession in their favour, would have some Foundation. On the contrary, what

are the Grounds of that we have for the Antients? Their Names, which sound better in our Ears, because they are *Greek* or *Latin*; the Reputation they had of being the chief of their Age, which was true for their Age only; the number of their Admirers, which is very great, as having had time to encrease in a long Course of Years: All this consider'd, it were more just that we should be prepossess'd in favour of the Moderns. But Mankind, not content to abandon Reason for Prejudices, often chuse such as are the most opposite to Reason, that can be.

When we shall have found that the Antients have arriv'd to the Point of Perfection in any thing, let us content ourselves to say, they cannot be excell'd; but let us not say, they cannot be equall'd; a manner of speaking so common among their Admirers. Why should we not equal them? As we are Men, we have always a Right to pretend to it. Is it not pleasant enough, that we should want Courage upon this Point, and that we, who have often so absurd a Vanity on other Occasions, should

should sometimes be capable of an Humility no less absurd? It is decreed, it seems, that we must be Ridiculous every way, and sometimes even in Contraries.

Nature remembers, no doubt, how she form'd the Heads of *Cicero* and *Titus Livius*. She produces in all Ages, some that are capable of being Great Men; but those Ages do not always permit them to exert their Talents. The Inundation of barbarous Nations; Governments, either absolutely opposite, or little favourable to the Arts and Sciences; Prejudices and Fancies, which may take a thousand different Forms, such as the Superstition they have in *China* for dead Bodies, which prevents their making any Dissections; and universal Wars, often establish'd, and for a long time Ignorance and a bad Taste: Add to this, all the various Dispositions of particular Fortunes and Conditions, and you will easily apprehend how Nature sows in vain *Ciceros* and *Virgils* in the World, and how rarely it is that they come up to good. 'Tis said, that

Heaven when it forms great Kings, forms at the same time great Poets, to sing their Praises, and great Historians to record their Actions. Thus far it is true, that in all times the Historians and Poets are ready, and that Princes need only resolve to employ them.

The barbarous Ages which follow'd that of *Augustus*, and have preceded ours, have furnish'd the Partisans of Antiquity with the most plausible of all their Reasonings. From whence is it, say they, that these Ages have been so grossly stupid and ignorant? Certainly it is because the *Greek* and *Latin* Authors were not understood, or read: but from the moment that Mankind plac'd before their Eyes these excellent Models, Reason and a good Taste began to revive. This is true, and yet proves nothing. Suppose a Man who had made a good beginning in the Sciences and polite Learning, should have fallen into a Distemper, which had made him forget them; would it be reasonable to say he was become incapable of them? No, he might recover them by begin-

beginning again with the first Elements. Or if any Medicine should at once restore his Memory, his Task would be the shorter; he would find himself in possession again of all that he knew before, and would have nothing to do but to go on where he left off. The studying of the Antients has dissipated the Ignorance and Barbarity of former Ages. I believe it. It gives us at once, just and elegant Ideas, which we should have been a long time in forming by ourselves, but which we should have form'd at last, without the help of the *Greeks* and *Latins*, if we had industriously search'd after them. And whence should we have had them? Why, from the same Source from which the Antients had them. The Antients before they became possess'd of them, trifled for a long time.

The Comparison we have just now made of the Men of all Ages to one Man, may be farther extended through the whole present Question concerning the Antients and the Moderns. A good Capacity cultivated, is in a man-

ner a Composition of all the Capacities of former Ages: it is the same Capacity, cultivated through all that Time. Thus this universal Man, who has liv'd from the beginning of the World to this Day, has pass'd through his Childhood, which was wholly taken up with the most pressing Necessities of Life; his Youth, in which he succeeded well enough in the Studies of Fancy, such as Poetry and Eloquence, and in which he began likewise to reason, but with more Fire than Solidity: and he is now arriv'd at his Age of Manhood, in which he reasons with more Force; and has more Light than ever, but would make much greater Advances, if War, and the Love of Arms had not too much engag'd his Pursuits, and given him for too long a time a Contempt of Learning, to which however he is at last return'd.

'Tis pity a Comparison, which sets out so smoothly, cannot be carry'd on farther. But it must be own'd that this Man of all Ages will never be old. He will be always equally capable of Improvements proper to Youth, and more

more and more of such as are agreeable to Manhood : That is to say, (to quit the Allegory) Mankind will never decline, and the Views and Discoveries of all Men of Capacity will be added to the common Stock, as they shall succeed one another.

This Stock, which encreases daily, of Views we ought to follow, and Rules we ought to practise, augments perpetually the Difficulty of the several kinds of Arts and Sciences : but on the other hand, new Facilities arise to balance those Difficulties. I will explain myself by Examples. In *Homer's* Time, 'twas next to a Miracle, that a Man should be able to mould his Discourse into Feet and Numbers, with Syllables long and short, and at the same time produce any thing of good Sense. Poets therefore were allow'd endless Licences, and the Age was happy enough in having any such thing as Verse. *Homer* might in the same Line speak five different Languages ; he might use the *Dorick* Dialect, when the *Ionick* would not fit his purpose ; or in default of both,

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he might employ the *Attick*, the *Æolic*, or common Speech: that is to say, he might speak the Language of *Picardy*, *Gascony*, *Normandy*, *Britony*, and common *French*, at one and the same time. He might stretch out a Word by the addition of a Syllable, if it were too short; or curtail it, if too long, and nobody would have any thing to object: and this Jargon of Languages, this motley Collection of Words metamorphos'd and disfigur'd, was the Language of the Gods, as well it might; for 'tis certain, it was not the Language of Men. By degrees, the World saw the Ridiculousness of these Liberties granted to Poets. They were therefore retrench'd, one after another, and at present the Poets find themselves quite stripp'd of their antient Privileges, and reduc'd to the necessity of speaking naturally. This, one would think, should have almost spoil'd the Trade, or at least very much encreas'd the Difficulty of making Verses. But it has not; for the Mind is now enrich'd with an infinite Stock of Poetical Ideas, which have been

been furnish'd by the Antients. We have their Works in our hands, and are guided by a great Number of Rules and Reflections, which have been made upon the Art: And as these were wanting to *Homer*, he has justly been allowed for that Want in all the Licences indulg'd to him. In the mean time, I believe, to speak the truth, that his Condition of the two was better than ours. There is no Exactness in Compensations of this Nature.

The Mathematicks and Natural Philosophy are Sciences, which encreas'd like a Load upon the Learned, till they have been forc'd at last to throw it off: But the Methods in the mean time are multiply'd. The same Capacity that brings things to Perfection, by adding new Discoveries, improves at the same time the manner of Learning, by making it shorter, and furnishes new Means of comprehending the new Extension it gives to the Sciences. A Philosopher of this Age is, in respect of Learning,

ing, ten times a Philosopher of the Age of *Augustus*; but then he has ten times more Helps and Advantages to become that Philosopher.

If I were to draw a Picture of Nature, I would represent her like Justice, with a Balance in her Hand, to signify that she employs it in dividing to her Sons their several Portions; and that for the most part she makes pretty near an equal Weight in what she distributes to Mankind; Happiness, Capacity, the Advantages and Difadvantages of their different Conditions; the Facilities and Difficulties which regard Matters of Wit and Learning.

By virtue of these Compensations we may hope the Ages to come will admire us to an Extravagance, in amends for the little Regard which is paid us in our own Age. Future Criticks will perhaps study hard to find out in ~~our~~ Writings Beauties we never design'd: on the other hand, Faults which are not to be defended, and which the Author himself would now give up, may meet with

with Advocates of an invincible Courage. Heaven knows with what Scorn, in comparison of us, they will treat the great Wits and Genius's of their own time, who possibly may be *Americans*. Thus it seems that Prejudice sinks us in one Age, to raise us in another. We are now the Sacrifice, and then the Divinity. A Sport diverting enough to be look'd upon by impartial Observers!

I might extend the Prophecy yet further. The time has been when the *Latins* were Moderns ; and then the Complaint was of the Infatuation the World had for the *Greeks*, who were Antients to them. The distance of Time between these Competitors disappears to us, who are at so much a greater distance. They are both Antients to us ; and we make no Difficulty of preferring ordinarily the *Latins* to the *Greeks*, because there is no hurt done, in a Victory of the Antients over the Antients. But it would be of the most terrible Consequences, if it were

were a Victory of the Moderns over the Antients. Let us have patience, and by a long Succession of Ages, we shall become as it were Cotemporaries with the *Greeks* and *Latins*. And when we are thus all Antients, it is easy to foresee that there will be no Scruple in giving us in many things the Preference. The best Works of *Sophocles*, *Euripides*, *Aristophanes*, will scarcely stand before the *Cinna*, *Horace*, *Ariane*, the *Misanthrope*, and many other Tragedies and Comedies written at a good time ; for indeed, to speak impartially, it must be own'd, that good Time has been past for some Years. I do not think *Theagenes* and *Chariclea*, *Clitophon* and *Leucippe* will ever be compar'd to the *Cyrus*, *Astrea*, *Zayde*, or the *Princess of Cleves*. The same may be said of the newer kinds of Writing, as Letters of Love and Gallantry, Tales, Opera's, and the like ; each of which kinds has furnished us with some excellent Author, to whom Antiquity has nothing to set in opposition, and who will not perhaps

haps be surpass'd by Posterity. If we were only to instance in Songs (a sort of Writings which perhaps may be lost, and to which no body pays much Regard) it is certain we have a prodigious Number of them, full of Wit and Spirit; and such as I will venture to say, if they had been known to *Anacreon*, he would have sung oftner than his own. We see, by a great variety of Poetical Writings, that the Versification is capable at present of as much Dignity, and at the same time of more Justness and Exactness than ever. I have design'd to avoid entring into Particulars; therefore I will not undertake to display at large our Riches. But I am convinc'd we are in the Condition of some wealthy Lords, who do not keep always an exact Register of their Goods, and have more Possessions than they think of.

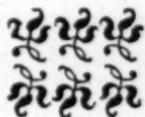
If the great Men of the present Age had any Charity for Posterity, they would advise it not to admire them too much, and to aspire always at least to equal them. Nothing so much stops the

the Progress of Arts; nothing checks the Wit of Man so much as an excessive Admiration of the Antients. Because the World has happen'd to be blindly devoted to the Authority of *Aristotle*, and has sought for Truth only in his dark and enigmatical Writings, and not in Nature itself, Philosophy has not only made no advancement, but was sunk into the Depths of a pedantick Jargon, and unintelligible Ideas; from whence it has cost the greatest pains imaginable to set her free. *Aristotle* has never made one true Philosopher; but he has spoil'd many a Genius capable of making one, if left to it self. And the mischief is, that such a whimsical Prepossession being once establish'd among Men, continues for a long time. It requires whole Ages to recover out of it, even after the Folly of it is known. If the World should in like manner run mad after *Descartes*, and place him in the room of *Aristotle*, this too would be attended with almost the same Inconveniencce.

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In the mean time, to speak the whole Truth, it is by no means certain that Posterity will allow us the Merit of the two or three thousand Years distance, which may be one Day between us and them, as we do at present to the *Greeks* and *Latins*. We have all the Symptoms in the World to make us believe that Reason will improve, and that People will be generally disabus'd, and freed from their great Prejudice in favour of Antiquity. Perhaps it may not last much longer; perhaps too, as it now stands, we may admire the Antients without gaining any thing by it to our selves hereafter, or ever being admir'd on the same foot in our turn.

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